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ABSTRACT

Four working papers from the 1992 Summer Institute of Linguistics, University of North Dakota session, are presented. The first, "English Borrowing in Thai as Reflected in Thai Journalistic Texts," by James Kapper, looks at patterns of the influence of the English language on Thai. It is concluded that English has permeated Thai culture and society deeper than the level of the specialized bilinguals who introduced many of the loan words. "Preposed and Postposed Adverbials in English," by Stephen H. Levinsohn, describes the differences in meaning resulting from placing adverbial clauses before or after the main verb in an English sentence. In "The Role of Language in the Dissolution of the Soviet Union," by David F. Marshall, the dynamics of multiple languages and cultures, ethnic mobilization, and the dissolution of the USSR are explored. It is proposed that government policy concerning multilingualism was less to blame for ethnic tensions than Russian ethnocentrism. "Tone in Komo," by John Paul Thomas, is an analysis of sound patterns in Komo, a sub-Bantu language, focusing on tonal patterns. Rules and processes for each of three strata of tonal processes is outlined. (MSE)

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PREFACE

The contributors to the present volume represent a variety of connections with the Summer Institute of Linguistics, as the papers represent a variety of kinds of linguistics and, indeed, a broad geographical spread of languages. David Marshall and Jim Kapper are both members of the English Department at UND and teach courses leading to degrees in linguistics. Their papers are sociolinguistic in nature; David's grew out of an SIL colloquium lecture in 1991 on languages of the (then) Soviet Union, while Jim's paper reflects field work in Thai. Stephen Levinsohn is a member of the Summer Adjunct Graduate Faculty in linguistics, who is currently engaged in field work in Colombia; his paper has to do with sentence syntax in English from a discourse-functional perspective. And Paul Thomas, an MA candidate working in Togo, has contributed a paper on the phonology of tone, which grew out of but goes beyond his MA thesis.

Our thanks for the production of the volume go to Kathie Dooley for copyediting and arranging for printing and distribution, and to Bob Wright and Ed Owen for doing editing and formatting on the computer. We would also like to express our appreciation to John Crawford, Hu Matthews and Lindsay Whaley for help in evaluating papers for the volume.

R.A.D.

D.F.M.

ENGLISH BORROWING IN THAI AS REFLECTED IN THAI
JOURNALISTIC TEXTS

James Kapper
University of North Dakota

- 1 Introduction
- 2 Questions and Implications
- 3 Methodology
- 4 Analysis of borrowing in Thai
- 5 Conclusions

1 Introduction

This study looks at patterns of occurrence of English loan words in various domains of journalistic discourse in Thai print media. By examining domains of Thai discourse where borrowing from English occurs, as well as patterns of nativization for borrowed items, we can gain insight into the economic, political, and social situations which hold between the two languages. This, in turn, will have implications not only for the study of the mechanisms at work in a language contact situation, but also for the study of English in its situation as a global prestige language.

Like previous prestige languages, English rose to its position during a period of colonialism and the expansion of imperialist powers. Studies such as Kachru's (1983) *Indianization of English* (also Kachru 1982, Platt and Weber 1984, and others) have concentrated on the further development of English in former colonies, including Indian, Singaporean, and Malaysian English. However, the social

setting which historically caused English to assume its position in these countries, and globally, has changed. Today's imperialism is predominantly economic rather than overtly militaristic. Although the subject of language borrowing has been well studied, and the social settings of prestige languages have been examined in detail, a look at the phenomenon of language contact between English and the language of a developing nation which is not a former colony of a western nation may help to identify those conditions which contribute to the continued use and future spread or decline of English as a language for international communication. Questions on these matters are of obvious concern to those in the business of teaching English to speakers of other languages, to language planners, and to educators in third world countries. As Masavisut et al. pointed out in "The power of English in Thai Advertising," a study of the use of English in a particular register of Thai, "Today English is needed for survival....cultural invasion of the more affluent countries on the less developed countries (is to be seen in the language of advertising)" (Masavisut 1987:3).

These issues are important whether English is viewed as simply a language for wider communication and international commerce, or an instrument of cultural invasion and a new imperialism.

2 Questions and implications

The Thai language was selected for this preliminary study for two reasons. First, as Thailand wasn't colonized by European nations, English and other western languages were not imposed on the country. Historically, these languages have been used in Thailand as a matter of economic expediency, if not outright necessity. In fact, since the time of Chulalongkorn, Thailand's rulers have considered

knowledge of European languages and their associated cultures, by members of the ruling class, to be a necessity if Thailand was to avoid the fate of colonization which befell its neighbors. The case of contact between Thai and English, therefore, is different from the cases in south Asia and Africa because English was not imposed by an outside colonial power as part of the machinery of colonial government, but was, in a sense, imported, although not entirely as a matter of free choice.

The second reason for choosing the Thai language is that linguists in Thailand already raise questions on the status of English in their country. Warie, as early as 1978, comments that the study of language attitudes in Thailand has implications for linguistic theory as well as education. She discusses the development of a 'new register' of Thai, English-mixed rather than Indic-mixed. And she hypothesizes that more detailed examination of data from specialized fields would show particular patterns of usage of anglicized Thai.

Kanittanan (1979) and Chutisilp (1984) also comment on the use of English as an additional language in Thailand, and on the sociolinguistic implications of this. Kanittanan focuses on how English influences the speech of Thais living in Bangkok, while Chutisilp looks in the other direction toward the influence of Thai as L₁ on English spoken by Thais.

More recently, and more to the point at hand, Masavisut et al. have studied the use of English in Thai advertising with the intention of demonstrating the impact of western society, and the use of the English language, on Thai culture:

In the advertising scene where printed materials, radio, and television are powerful media for transmitting commercial values into the public's mind the power of the English language has become inevitable and irritable. It is quite difficult to predict when the trend will be changed. The way things look now, it seems that the trend will perpetuate forever. No one can deny the fact that advanced technology is innovated and transferred to Thailand by western countries. Though Japan is one of the leading nations in technological advancement, Japanese products are still marketed with English brand names, English product features, and English generic product categories. As long as these products, their claims, their slogans, their supports, and their features are to be advertised, the power of the English language through media penetration will be felt.

(p. 25)

Though it may be difficult to tell *when* the trend will be reversed, it is not difficult, given the nature of prestige languages, to tell *what* would reverse the trend. English could be replaced by another language of technology, or of imperialism. The fact that groups of people, like individuals, can often be convinced of their superiority or inferiority to other groups has upheld the phenomenon of relative social prestige of languages as a constant feature of human society. Given this, and the sociolinguistic history of Thailand, the interesting questions for this study become, not those related to English in Thailand, but rather those related to English in Thai.

Masavisut et al. have claimed that the use of English in Thai advertisements has the effect of making the ads more persuasive. English may be used in nearly all areas of an ad. Brand names may appear in Thai, as do descriptions of product claims which are said, by advertising copywriters quoted in the study, to "sound more credible and prestigious

when translated into English." (p. 2) Product features are often named in English "to give them a 'high tech' sound," and in fact the features themselves are often borrowed from western technology, as are entire products, which in turn leads to the borrowing of product names and so on.

The increased effectiveness of the ads which include English in them can be said, therefore, to result from an attitude in the minds of Thai consumers that associates English with high tech or modern concepts and products. In the ads described in Masavisut's study, English is sometimes transliterated into Thai script; at other times the Roman alphabet is used. It would appear that the appearance of English on a label is a strong enough appeal to this attitude in the consumer to influence a decision to buy, whether the language is understood or not. Obviously some consumers will understand the language and others will not. In some ads, particularly those aimed at the youth market, it seems likely that the advertisers don't expect the consumer to fully understand the English in the ad. On occasion, product claims in Thai advertisements appear in a mixture of Thai and English. Such claims usually involve English idioms or metaphorical expressions which may pose special translation problems. In any case, while the occurrence of English words in advertising texts provides insight into language attitudes, it is somewhat more difficult to arrive at generalizations about the actual use of English, and English loan words, by the Thai consumers who read the ads. In order to do this, information about the language behavior of Thai consumers must be obtained.

3 Methodology

Because of the strength of the claims made in papers such as Masavisut's and the others discussed above, and because it has been adequately shown that written discourse

is a worthwhile source of data for linguistic study, the data discussed in this paper has been taken from Thai journalistic texts. Since the language of such pieces of discourse is intended to be read and, presumably, understood by a wide audience, it's safe to assume that an author writing for a magazine would use language familiar to his audience. Therefore, data gathered from these sources should provide clues to the behavior of members of the speech community of magazine readers rather than the linguistic competency of a single speaker, such as an advertising copywriter. Furthermore, in the case of this study, the use of a body of texts will make it possible to collect a relatively large body of data easily, while limiting the data to particular domains of language use.

The texts examined come from a different functional domain than the advertising just discussed. They are informative, without the purpose of selling. Since the assumption has been made that a textual study could give an indication of the linguistic competence or behavior of members of a community, texts were chosen to provide data from a variety of discourse domains in order to allow comparison of possible differences in behavior or competence. Since the study is preliminary, to test these basic assumptions a limited number of magazines were selected as sources of texts for analysis: two each in the areas of politics and business, and two more general coffee-table type magazines.

In general, the magazines are aimed at an educated audience of adult readers. Most contain some of the same ads discussed in Masavisut et al, or ads for similar products. All six are readily available on newstands in Thailand and are widely read.

The newest (in its second issue at the time of this study) of the two business magazines, *Marketing* or การตลาด *gantalat* has the name of the publication in both English and Thai on its logo. Its more established competitor คู่แข่ง *khuukhang* 'competitors', is somewhat more conservative in its design and editorial approach. *Marketing* also has a bureau in the United States. An emphasis on consumer goods and the latest trends, in both advertising and editorial content, gives the impression that the publication is aimed at a younger, upwardly mobile group of readers that would probably have been referred to, in the US, as 'yuppies'. Both of these are read by businesspeople and members of the general reading public who are interested in business news. *Competitors* tends to feature more in-depth analysis in its stories and has a greater emphasis on news than *Marketing*. The latter places more emphasis on the advertising field and analysis of new products and advertising campaigns. As such, it is more specialized than *Competitors*, which appeals more to a 'lay' audience. A statement of purpose in the opening pages of *Marketing* indicates its commitment to the advertising profession.

Of the six magazines selected as sources of data, these two business publications had the largest concentration of English words.

In the domain of politics the two publications selected were มติชน *matichon* 'people's opinion', and สยามรัฐ *siam rart* 'Siam state'. Like the business magazine *Competitors*, *Siam State* is aimed at the older, and more conservative reader. Its content is strictly political news and editorials. Readers of *People's Opinion* are less conservative and also expect more from their magazine than political discussions. *People's Opinion* contains fiction and poetry (albeit politically oriented) and entertainment, arts,

religious, and sports features. The language of *Siam State* and *People's Opinion* showed two distinct registers of Thai. One, a heavily Sanskritized version of Thai, showed up in editorials, or articles critical of the government. The other, more common register, used more English loan words and few words of obviously Sanskrit origin. The use of the Sanskritized register in Thailand is normally indicative of a formal, serious tone and gives the impression to native speakers of Thai that the speaker is a very educated individual identified with traditional and conservative attitudes.

The remaining two magazines, selected because of their appeal to general readers, are *ดิฉัน diichan*, a first person singular feminine pronoun, 'I' and *ลิลานา lalanaa* 'young woman'. The titles suggest that the magazines are aimed at women, and in fact some of the content, such as articles on fashion and decorating, are written for female readers. Most of the buyers of both of these publications are female; however, content of general interest tends to insure that the magazines are read by men as well. Both magazines also contain articles reprinted from other sources.

All six of the publications examined were published during August or September of 1986. Data was collected from each issue with the help of a language consultant¹ and filed in a computerized data base in order to facilitate preliminary analysis for this study, as well as to allow the possible application of statistical methods to a larger corpus of data at a later time. Such a study should include a more detailed analysis of the ratio of borrowed English

¹I gratefully acknowledge the invaluable assistance of Namtip Pingkarawat who unselfishly gave her time in assisting with the collection of data for this study.

words to 'native' Thai words and also allow for a more careful definition of the Sanskritized register.

In the analysis, all words of possible English origin were noted, as well as the frequency of occurrence of particular items. All the editorial content of each magazine was examined. Advertising was ignored for the purposes of this study.

4 Analysis of borrowing in Thai

In the 182 magazine articles examined, which ranged in length from a fraction of a page to 14 pages, 626 separate lexical items were found to have been borrowed from English. Although no data is available to show what percentage of the total vocabulary used in these articles this figure may represent, the number of items found does not seem insignificant. The more interesting questions for this study concern the domains where borrowing is occurring, and the patterns of nativization, which will indicate the depth to which English language and culture have penetrated into Thai. Table 1 shows the distribution of borrowed lexical items in each of the three domains represented by the six magazines.

Table 1			
Magazine	# articles	# articles with no Eng.	# borrowed items
<u>general:</u>			
I (220 pp.)	44	1	197
Young Woman (150 pp.)	39	4	137
<u>political:</u>			
People's Opinion (50 pp.)	32	8	50
Siam State (44 pp.)	29	7	45
<u>business:</u>			
Competitors (196 pp.)	27	0	262
Marketing (46 pp.)	12	1	90

To make a preliminary comparison of the relative amounts of borrowing from English between discourse domains, a constant ratio of English to Thai lexical items is assumed to hold within each publication. This allows a comparison to be made on the basis of the average number of borrowed words to appear in each text.² Table 2 shows the average number of English borrowings per article in each of the publications.

Table 2	
I.....	4.4
Young Woman.....	3.5
People's Opinion.....	1.56
Siam State.....	1.5
Competitors.....	9.7
Marketing.....	7.5

²As noted above, for a more accurate statistical study a word count would be necessary. In the case of this study, with the purpose of making testable hypotheses regarding the amount of English borrowing in various domains and registers of Thai, this "quick and dirty" method will allow at least a reasonable estimate to be made.

The table shows a wide range of disparity in the amount of lexical items borrowed from English that are used in each domain. The texts taken from the political publications are the most conservative in terms of the amount of anglicization taking place. This is in keeping with the attitudes associated with the Sanskritized formal register often found in these publications.

Nor is it surprising that the texts representing the domain of business and advertising would show the largest concentration of English items, since, as noted above, English has become the international language of these fields, and is supported as a prestige language by factors of trade and commerce.

The numerical scale representing the degree of borrowing ranges from 1.53, the median number of borrowings per text in the political domain, to 8.6, the median number for advertising. The number of borrowed English lexical items per text in the general domain, represented by *I* and *Young Woman* is slightly below 5.65, the center of this scale.

No firm conclusion can be drawn from this comparison but some hypotheses are suggested.

The use of a traditional Sanskritized register, that associated with the Thai literary tradition and the educated upper classes, apparently identifies the more conservative speakers in the domain of political discourse. This avoidance of an anglicized register, and the linguistic nationalism supported by the language policies of the Thai government, apparently discourage borrowing from English in this domain.

Borrowed items from the sample in this domain include:

anglophone	bank	buffer	cable T.V.
communist	concert	discredit	exhibition
genes	physicist	pump-gas (gas station)	
seminar	superstar	underground	technique
zipper			

Obviously not all of the borrowed words are directly related to politics or political ideas. Some of these also show up in other sample texts as well.

The high frequency of borrowing from English found at the opposite end of the scale can be explained by the nature of advertising and other business-related fields. Heavy borrowing occurs in two main areas of the domain: the first related to consumer goods, the second to business jargon itself. Masavisut et al. have pointed out the reasons for the importation of products and product names or features. In this area we find words such as:

album	sound track	beer	boutique
caffeine	ceramic	control	fashion show
guarantee	king-size	mood	spray
tape	taste	word processing software	

These kinds of items also achieve widespread use in other domains. Jargon words related to business, however, are less widespread outside of business texts:

account	agent	agency	art director
big boss	billing	bus back	campaign
consumer research		corporate image	D-Day
creative director		direct marketing	export
hard sale	layout	market share	professional
reactive	reactive	showroom	supplier
p.o.p. (point of purchase)			

A large number of people working in business, particularly advertising, are bilingual speakers of Thai and English. (In *Marketing* most of the advertisements for jobs are in English.) This serves as an area of language contact where many of Thai's borrowed English lexical items first enter the language.

A look at the data from *I* and *Young Woman* shows that borrowing takes place in almost any semantic domain:

antique	black	bonus	capsule
chalk	character	cheer	clearing
counter	crystal	escort	flat
idea	joke	latitude	major
masterpiece	mobile unit	OK	sculpture
seafood	serve	tall	wealth

In studies of foreign borrowing, questions of nativization become important. Two kinds of nativization are relevant to this study. One involves the sound of words, the other the meaning.

Phonological changes occur because native speakers of the matrix language fit borrowed words into the phonological system of their language. Semantic shift or expansion is a linguistic, and cultural, phenomenon. Except in the cases when a newly-borrowed word coincides with a borrowed concept, the newly-borrowed expression must be adapted to fit in with the important concepts and behavioral patterns of the culture of the matrix language. Therefore linguistic borrowing involves changes, either unconscious or conscious, in language-related behavior patterns of bilinguals. These borrowed patterns are then passed on to the rest of the population. In the case of borrowed lexical items, this second step, the transfer to other speakers, is the point in

the process when nativization is most likely to occur, when the most radical phonological changes or semantic shifts take place.

The Thai orthography is designed to show the original spelling and pronunciation of words borrowed from Sanskrit. The same conventions and special characters that allow this are often used in transliterating English. Although research on the phonological aspects of borrowing is not possible in an analysis of written discourse, this feature of the Thai script is useful in discovering how English words become nativized in Thai. For example, the sound /r/ doesn't occur in word-final position in Thai. The spelling for the Thai word for 'beer', which comes from English, is เบียร์, pronounced /biya/. The character 'ร' appears in the Thai form because it approximates the English 'r'. The marker above the character indicates that it is unpronounced. The word for 'bill', pronounced /bin/ in Thai, is spelled with the character 'ล', which normally represents an /l/ sound, except when it has the value of /n/ word finally. The Thai spelling for the word is บิลล์. The consonant cluster at the end of the word is not a possible combination in Thai, yet the original spelling of the English word is retained with the use of the 'unpronounced' marker.³

Another interesting example is found in the English word 'brand loyalty'. The pronunciation in Thai could be either /brænloyaati/ or /brænroyaati/. In some dialects of Bangkok Thai, there is convergence going on between the /l/ and /r/ sounds and hypercorrection on the part of speakers seeking to maintain the pronunciation of the status dialect often results in the substitution of /r/ in words that originally

³This also indicates that the word was not necessarily borrowed from spoken language since the long consonant at the end of the word would not be an important distinction in spoken English or Thai.

contained /l/. In the case of 'brand loyalty' the word has been spelled to indicate the /r/ sound instead of the /l/.

Other examples in the data show indications that they were completely nativized in spoken Thai before being written. เ็น en 'entrance exam' is one of the most obvious, เดิร์น dun 'modern' is another. Occasionally two borrowed forms exist simultaneously, one apparently more nativized than the other, as in the case of 'zip' and 'zipper', which both refer to the fastener.

Semantic shifts occur in a number of examples. A sample includes the verb 'lobby', which has been extended in meaning beyond the idea of lobbying politicians. The example in the data was used to refer to the activity of seeking to build good public relations and good relations with the press. 'Partner' is used to refer, not to one's business associates, but rather to a kind of prostitute working in bars. 'Pump gas' is no longer a verb phrase but instead acts as a noun meaning 'gas station'.

An interesting innovation is the collocation ไม่นก no ke 'not OK'.

The data also included a number of borrowed English lexical items which have combined with native Thai words. It's not uncommon to attach a Thai particle meaning 'person' or 'tool' to an English verb like 'ski' to create the Thai equivalent of 'skier' or 'ski equipment'. Other possible combinations include Thai nouns with English modifiers, and vice versa, or noun-verb combinations as in mii-date, 'to have a date'.

One of the most unusual borrowed forms to turn up in the data is the English affix -s. According to Thai native

speakers, the affix can be placed on Thai adjectives to intensify them, the explanation being that the meaning of the form in English is something like 'to make many'. This gives the affix the same semantic function as the native Thai intensifier มาก *maak*, meaning 'much' or 'many', which can also be applied to a variety of syntactic elements.

5 Conclusions

Indications from the data in the areas of language use and nativization processes are that English is having significant impact on Thai in a broad range of semantic domains. The use of English by bilinguals working in specialized fields, particularly those related to business and marketing, and the attitude toward the English language and associated products, (as reflected in the studies of Thai advertising discussed above) lead to the more widespread borrowing of English lexical items and the associated culture.

The use of English loan words, and the degree to which they have been nativized, especially in the more generally-oriented publications, also show that English has permeated more deeply into Thai culture and society than the level of the specialized bilinguals who initially introduce many of the loan words.

The domains in which borrowing has occurred suggest social, economic, and political motivations for this trend, as well as the operation of a kind of linguistic imperialism. Language-exporting countries are those which create a need for their language by being a source of consumer products, technology, 'innovation', and sometimes 'aid'. The result of all this is that countries like Thailand are literally buying into western culture. This is the mechanism which maintains the status of English as a global prestige language.

This work also shows that the study of written Thai discourse is a practical and useful strategy for studying language contact in this case. A more detailed, statistically-oriented study of written Thai discourse would have implications not only for the theory of language contact but also applications in language teaching and planning in Thailand.

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PREPOSED AND POSTPOSED ADVERBIALS IN ENGLISH¹

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- 1 Introduction
- 2 Preposed adverbials
 - 2.1 Points of departure
 - 2.2 Types of coherence
- 3 Postposed adverbials
 - 3.1 The most important part of the communication
 - 3.2 Information important to the plot
- 4 Conclusion

1 Introduction

Does it make any difference whether an adverbial clause like *when the wolf arrived* precedes the main verb or follows it? For example, do (1a) and (1b) (which allude to the tale of "The Three Little Pigs") mean the same? And what about the same sentences with the subordination reversed, as in (1c,d)?

- (1)
 - a. When the wolf arrived, he was picking apples.
 - b. He was picking apples when the wolf arrived.
 - c. When/While he was picking apples, the wolf arrived.
 - d. The wolf arrived when/while he was picking apples.

The great British linguist J. R. Firth always maintained that when there is choice, there is meaning. The purpose of this paper is to explain some of the differences that are made to the meaning of a passage by preposing versus postposing adverbial expressions such as those which appear in (1).

¹This paper was originally given at a conference of professors of English (ACOPROLEM) in Santafé de Bogotá, Colombia, South America, in July 1991. Although the claims made in it about preposed adverbials are specifically about English, they have been found to hold also for Koine Greek (Levinsohn 1987 and forthcoming), Biblical Hebrew (Levinsohn 1991) and other languages. I am grateful to Dr. Robert A. Dooley and Dr. David Marshall for observations on an earlier draft of this paper.

The paper is divided into two main parts. In section 2, I discuss preposed adverbials, arguing that they have a bidirectional function: not only do they serve "as a point of departure for the communication" (Beneš 1962), they also provide the primary basis for relating that communication to the context (Levinsohn 1987:63).² The information contained in such an adverbial generally is of secondary importance, in relation to that conveyed by the clause to which it is subordinated. Furthermore, some discontinuity of topic or situation may be discerned when an adverbial is preposed. Conversely, failure to prepose an adverbial may reflect topic or situational continuity.

In section 3, I claim that the desire to preserve topic continuity is but one of the reasons for postposing an adverbial. Another reason is if the information conveyed by the adverbial is of primary importance in the sentence. Under certain circumstances, it may even convey information that represents a "turning point" (Hwang 1990:73) or complication in the story.

2 Preposed adverbials

2.1 Points of departure

It is generally accepted that, as Chafe puts it (1976:50), a preposed constituent such as an adverbial expression of time, space, condition, cause or purpose "sets a...domain within which the main predication holds" (see also Thompson & Longacre 1985:229). Or, in Beneš' words, a preposed constituent serves "as a point of departure for the communication" (loc. cit.). Thus, in (1a), *when the wolf arrived* serves as the temporal point of departure for the assertion *he was picking apples*. In (1c), in contrast, it is *when/while he was picking apples* which serves as the temporal point of departure for the assertion *the wolf arrived*.

Furthermore, the relative importance of the two assertions (*the wolf arrived* and *he [the little pig] was picking apples*) changes between (1a) and (1c). In (1a), *the wolf arrived* is of secondary importance or "backgrounded" (Givón 1990:845), whereas *he was picking apples* is of

²Ramsey (1987:385) states, "Preposed IC ['if' clauses] and WC ['when' clauses] are thematically associated to the preceding discourse as well as to the main clause." See also Givón 1990:847, who says, "Preposed ADV-clauses may be viewed as coherence bridges at major thematic junctures."

primary importance. In (1c), *he was picking apples* is of secondary importance, and it is *the wolf arrived* which is of primary importance. (Sentences like (1b,d) are discussed in sect. 3.)

I now illustrate other points of departure.³

In (2b) (quoted from Sayers 1985:438), *across the [vegetable] bed* serves as the spatial point of departure for the assertion *ran a double line of small footprints*. ((2a) is similar.)

- (2) a. At the back, trained against the wall, stood the peach tree, on which one great, solitary fruit glowed rosily among the dark leafage.
- b. Across the bed ran a double line of small footprints.

In (3c) (Sayers pp. 354f), *if the police are coming* in serves as the conditional point of departure for *oughtn't everything to be left just as it is?*⁴

- (3) a. "Nothing for it but the police, I'm afraid... Take it all down, eh, what?... Burn the lot [of the decorations]."
- b. "... you and Dennison do the drawing-room and I'll do the back room. We'll have a race."
- c. "But if the police are coming in," said Dennison, "oughtn't everything to be left just as it is?"

In (4b) (Sayers p. 347), *because Sir Septimus was a very rich man* sets the causal point of departure for the predication which follows; the willingness of the guests to go along with his whims is explained in terms of the benefits they derived, or would derive, from his wealth.

³Except where otherwise indicated, the passages cited are taken from two of Dorothy Sayers' short stories: "The Necklace of Pearls" (1972:347-57), which deals with the identification of a necklace thief, and "Talboys" (pp. 431-53), which concerns happenings related to the theft of some prize peaches.

⁴Haiman (1978:572) explains the tendency for conditional clauses to occur sentence initially in terms of contrastivity: "Like contrastive topics, they are contrastive because they are selected...from a list of possible conditions."

- (4) a. He was a simple-hearted man, who really liked plum-pudding and cracker mottoes, and he could not get it out of his head that other people, "at bottom", enjoyed these things also. At Christmas, therefore, he firmly retired to his country house in Essex,...
- b. Because Sir Septimus was a very rich man, his guests fell in with the invariable programme.

I found no preposed purpose clauses in Sayers' book, so (5) and (5') are taken from Ernesto Gómez's article "La maestría artesanal" in the June 1991 issue of Avianca's *El mundo en vuelo*. In both the Spanish original (p. 90) and the translation into English (p. 98), the adverbial clause makes the purpose the point of departure for the rest of the sentence.⁵

- (5) a. Una típica artesanía de la región surge del ensamblaje de estos rollos de fique teñidos en variados colores.
- b. Para obtener los rollos, los artesanos enrollan el fique teñido con anilinas o colores vegetales alrededor de un núcleo de paja.
- (5') a. A typical regional handicraft emerged when artisans experimented, assembling different color rolls of hemp, tinted with aniline and vegetable dyes.
- b. To obtain a roll, the artisan takes pre-dyed hemp and wraps it over a straw base.

Finally, (6b) (Sayers p. 440) illustrates what Chafe (1976:50) calls an individual point of departure, involving a noun phrase, rather than an adverbial; the expression *I think* serves as a spacer (Dooley 1990:477) to set off the subject (*the other*) as though it had been preposed.

- (6) a. One man climbed to the top [of the ladder] and took the peaches,
- b. while the other, I think, stood at the foot to keep guard and receive the fruit in a bag or basket or something.

2.2 Types of coherence

In each of the above examples, the preposed constituent, whether adverbial (2-5) or nominal (6), serves as the point of departure for what follows. What is less often

⁵See Thompson (1985) on the function of preposed purpose clauses in English.

recognised about the same constituent is that it typically indicates as well the primary basis for relating what follows to the context.

Preposed constituents relate to the context in one of two overall ways. Positive coherence (Werth 1984:61) involves repeating earlier constituents or at least referring to script-predictable information (Hwang p. 73) such as the next event expected. Thus, in (1a), *when the wolf arrived* would relate back to the wolf having arranged to meet the third little pig at the apple orchard. Similarly, in (1c), *when/while he was picking apples* would relate back to the pig leaving for the orchard to pick apples. In both cases, the information contained in the preposed adverbial clause would be script-predictable. As for (3c), the adverbial clause of condition relates to the earlier discussion of the need to bring the police in. Likewise in (5), the adverbial clause of purpose relates to the mention, in the previous sentence, of rolls of hemp.

Negative coherence (Worth loc. cit.) involves a switch (Andrews 1985:78) from an otherwise similar antecedent. For example, in (2), a spatial switch occurs, from *at the back* to *across the bed*. In (4), Sir Septimus being a very rich man represents a causal switch from the earlier assertion in the same paragraph, *he was a simple-hearted man*, which was adduced as the reason for the Christmas festivities that he offered. In (6), an individual switch occurs, from the earlier expression *one man* to *the other*.

That the preposed constituent indicates the *primary* basis for relating the information to the context is illustrated from passages in which more than one constituent could have been preposed. For example, it is just about possible to have expressed (6) as follows:

- (6) a. One man climbed to the top and took the peaches;
 b'. at the foot, I think, stood the other, to keep guard and receive the fruit in a bag or basket or something.

The relationship of (6b') to (6a) is still that of 'switch'. However, it is no longer a switch from one individual to another, as in (6b), but a switch from one location to another.

I argue that preposed constituents occur at points of *discontinuity* in a story (Levinsohn 1990:25; forthcoming, chapter 1). This is particularly clear when the preposed constituent represents a switch from a corresponding one in the context; the preposed item then indicates the nature of

the discontinuity. Thus, a preposed temporal expression typically occurs in connection with a switch from one temporal setting to another; i.e., there is a discontinuity of time, as in (1a,c). Similarly, a preposed spatial expression typically occurs in connection with a switch from one spatial point of departure to another; i.e., there is a discontinuity of space, as in (2b).

Preposed constituents which reiterate earlier information (the 'positive coherence' discussed above) also occur at points of discontinuity. In such instances, the preposed constituent does not reflect the nature of the discontinuity; instead, it manifests itself in some other aspect of the situation. This is illustrated in (7), cited from Sayers p. 350. *This moment* refers to the time during the search in the *drawing* room when Dennison makes a remark about feeling awkward (see (7a)), while the expression at *this moment* itself, which occurs at the beginning of a new paragraph, introduces events which lead to the search in the *back* room, starting with the reintroduction of Truegood in (7b). Thus, the discontinuity between the two paragraphs is not temporal, but rather involves different locations and, to some extent, different participants.⁶

- (7) a. [While Oswald Truegood is in the back room, in connection with a game of 'Animal, Vegetable, and Mineral,' a valuable necklace is found to have disappeared.] After ten minutes' fruitless investigation, Richard Dennison, who had been seated next to the table where the pearls had been placed, began to look rather uncomfortable. "Awkward, you know," he remarked to Wimsey.
- b. At this moment, Oswald Truegood put his head through the folding-doors and asked whether they hadn't settled on something by now, because he was getting the fidgets.

In general, the *absence* of a preposed constituent, when a potential one occurs, is suggestive of "topic continuity" (Givón 1983:8). This is illustrated in (8), cited from Sayers p. 356; notice the postposed temporal clauses.

⁶Dooley (personal communication) observes, "Preposed temporal expressions often occur at the boundaries of thematic units in narrative, even though the thematic [dis]continuity is of a different variety. This may have to do with the fact that narratives are organized primarily on a temporal framework, so that a temporal 'space-builder' (Fauconnier 1985:17) might conventionally imply, 'Begin a new space which will have major consequences for the discourse.'"

- (8) a. He had spent Christmas here before, and knew perfectly well that 'Animal, Vegetable, and Mineral' would form part of the entertainment.
 b. He had only to gather up the necklace from the table when it came to his turn to retire,
 c. and he knew he could count on at least five minutes by himself while we were arguing about the choice of a word.

The actions of the above passage naturally cohere, being united by having a single topic, viz., steps towards the stealing of the necklace. The postposed temporal clauses provide orientation as to the time of each step, but do not interrupt the development of the topic.

Consider the effect that preposing the temporal clauses would have had:

- (8) a. He had spent Christmas here before, and knew perfectly well that 'Animal, Vegetable, and Mineral' would form part of the entertainment.
 b'. When it came to his turn to retire, he had only to gather up the necklace from the table,
 c'. then, while we were arguing about the choice of a word, he knew he could count on at least five minutes by himself.

Preposing the adverbial clauses has the effect of relating the three events on the basis of switches of time (notice the use of 'then' in (8c')), as though they were a set of procedures which were to take place at those points. Such preposing, and the consequent introduction of temporal discontinuities, weakens the topic continuity that the Sayers version enjoys.

A comparison of (9b) (from Sayers p. 357) and (9b') illustrates the effect of preposing a postposed conditional clause.

- (9) a. It was almost certain that nobody would think of examining the mistletoe for extra berries.
 b. I shouldn't have thought of it myself if I hadn't found that pin which he had dropped.
 b'. If I hadn't found that pin which he had dropped, I shouldn't have thought of it myself, either.

In the Sayers version, there is topic continuity; although (9b) is an exception to the expectation that *nobody would think of examining the mistletoe for extra berries*, "the coherence appears to lie in the fact that it only came

to be an exception because of extraordinary circumstances; it is 'an exception that proves the rule'" (Dooley, personal communication). In (9b'), in contrast, the preposed conditional clause introduces a discontinuity, viz., the switch to a different, hypothetical situation. To make the resulting assertion reinforce (9a), rather than contrast with it, it is then necessary to add a connector like *either* or *furthermore*.

A comparison of (10b) (from Sayers p. 349) and (10b') illustrates the converse effect, if a preposed conditional clause is postposed.

- (10) a. "Did you take it, mother?"
 b. "No, I didn't. If I'd seen it, I should have. You are a careless child."
 b'. "No, I didn't. I should have if I'd seen it, though. You are a careless child."

The preposed conditional clause in the Sayers version indicates that the relationship to the context is one of switch to a different situation (hypothetical, in this case). Failure to prepose the clause (see (10b')) makes it virtually necessary to mark the switch to a hypothetical situation in some other way, e.g., by the use of *though*.

The English and Spanish versions of the next passage (taken from Gómez 1991) employ different bases for relating the second sentence to the first. In the English translation (p. 96), the preposing of the adverbial clause of purpose introduces a discontinuity or adjustment in the topic, as the writer turns from honoring the artisans involved, to what they do to create their products.

- (11) a. It was a solemn moment to pay homage to seven pairs of hands that have mastered the secrets needed to transform seven different types of materials into delicate and graceful objects.
 b. To create their products, the master artisans being honored employ time-honored procedures, formulas and secrets obtained from an illustrious tradition.

In the Spanish original, however (p. 89), the purpose clause is not preposed, and the second sentence continues to develop the topic of the artisans (*maestros*).

- (11') a. Era un homenaje a siete pares de manos que dominan los secretos necesarios para transformar siete materiales en delicados y asombrosos objetos.

- b. Los maestros homenajeados usan, para elaborar sus productos, procedimientos, fórmulas y secretos del oficio provenientes de una ilustre tradición.

(To achieve topic continuity in English, (11b) might have read, *The master artisans being honored employ in the creation of their products time-honored procedures...*)

We have seen, then, that a preposed constituent at a point of discontinuity both establishes a point of departure for what follows and indicates the primary basis for relating what follows to the context. In contrast, the absence of a preposed constituent, when a potential one is postposed, may reflect continuity of topic.⁷

3 Postposed adverbials

I turn, now, to postposed adverbial constituents. I have already argued that one reason for postposing a constituent, rather than preposing it, is if it does not indicate the primary basis for relating what follows to the context, with the corollary that topic continuity is maintained if a constituent is not preposed. Two other, related reasons for postposing adverbials are also found: i) when the adverbial conveys the most important part of the communication; and ii) when the adverbial conveys information that "is important in terms of the overall plot structure" (Hwang p. 73). I discuss these in turn.

3.1 The most important part of the communication

Adverbial constituents are postposed when they convey the most important part of the communication of the sentence.⁸ This is illustrated in (12) (Sayers p. 349). The

⁷I do not discuss preposed adverbials which are emphasised in some way. The following passage (Sayers p. 432) illustrates the preposing of a 'foil' (Levinsohn forthcoming, chapter 6), which provides the point of contrast for the point of departure in the next sentence (emphasis indicated in the original):

- a. Now, you see what happens.
- b. Just *because* your boy was told *not* to pick the peaches, he picked them.
- c. If he hadn't been forbidden to do it, he wouldn't have been so disobedient.

⁸This principle reflects the Prague School claim that the "rheme" (the most important part of the communication) occurs as far to the right of the sentence as the grammar of the language concerned permits,

main point of (12b) is not that the girl took the necklace off (the question presupposes that she had done so), but her reason for doing so.

- (12) a. "What have you done with your necklace?"
 b. "I took it off, Dad, because I thought it might get broken in 'Dumb Crambo'."

(13) illustrates another sentence in which the postposed adverbial clause is the most important piece of information being conveyed. Prior to this, the detective has explained how he deduced who the thief was. The listener then asks (Sayers p. 357):

- (13) "And you worked it all out when you found the pin?"

It is already known to the listener that the detective had "worked it all out." The main point of his question was that he confirm *when* it was that he did so.

One further example—(14) is from Sayers p. 350. (14') is the equivalent form with the adverbial preposed.

- (14) I think, Sir Septimus, it would be a relief to the minds of everybody present if we could all be searched.
 (14') I think, Sir Septimus, if we could all be searched, it would be a relief to the minds of everybody present.

The main point of this communication, in the Sayers version, is the suggestion that 'we all be searched'. If the adverbial clause were preposed, as in (14'), the main point would be the relieving of the minds of everybody present, were the suggestion to be carried out.⁹

unless it is specially marked to the contrary; see Firbas 1964:115. Similar claims are made by other authors, often using different terminology. For example, Erteschik-Shir (quoted in Celce-Murcia and Larsen-Freeman 1983:240ff) discusses the same principle in terms of "dominance." (I am grateful to Dr. David Marshall for drawing my attention to this book.)

⁹These claims apply only to written material. In oral speech, intonation is often used to indicate when the rheme is not final; see footnote 8.

3.2 Information important to the plot

In most of the passages considered to date, the events described in the adverbial clauses (whether real, potential or hypothetical) occur prior to those presented in the clauses to which they are subordinated. Thus:

- i) the reason posited in a *because* clause is true before the event of the corresponding independent one (e.g. (12b));
- ii) the event described in a *when* clause takes place before the one presented in the corresponding independent clause (e.g. (13));
- iii) the condition of certain types of *if* clauses has to be true before the event of the corresponding independent one can take place (e.g. (14)).

Hwang has pointed out (p. 69) that there is a marked usage of postposed *when* clauses, when they describe an event that took place *after* that of the clause to which they are subordinated. As examples of this, she quotes sentences similar to (1b), repeated below. (The arrival of the wolf took place after the little pig started picking apples.)

- (1) b. He was picking apples when the wolf arrived.

Such clauses convey information which "is 'important' in terms of the overall plot structure," such as indicating "a turning point or peak in the global context." When this happens, "the independent clause preceding the adverbial clause usually reports setting, background, or successive routine events" (p. 73). Thus, in (1b), the arrival of the wolf (before the little pig had finished picking apples) introduces an important, new complication into the story.¹⁰

(15) illustrates the same device used by Sayers (p. 349), to introduce the discovery that the necklace has been stolen. (The use of the pluperfect ensures that the independent clause be interpreted as background information.)

¹⁰In (1d), the independent clause preceding the adverbial reports an important event (*the wolf arrived*), and the adverbial clause, background information (*he was picking apples*). In such a sentence, the adverbial clause would have been postposed to maintain topic continuity. (See end of sect. 2.)

- (15) Oswald Truegood had retired into the back room and shut the door behind him while the party discussed the next subject of examination, when suddenly Sir Septimus broke in on the argument by calling to his daughter: "Hullo, Margy! What have you done with your necklace?"

Later in the same story, at the point which leads to the identification of the thief, Sayers (p. 354) again uses the device:

- (16) The party assembled gradually, but, as though by common consent, nothing was said about pearls until after breakfast, when Oswald Truegood took the bull by the horns.

Hwang (p. 69) points out that, if a *when* clause is used in this way, it is often not possible to prepose the adverbial clause. This is true of (16), for instance; (16') is unacceptable:

- (16') *...when Oswald Truegood took the bull by the horns, nothing was said about pearls until after breakfast.

4 Conclusion

I have shown that it does make a difference whether an adverbial expression precedes the main verb or follows it. Whereas the information conveyed in a preposed adverbial is backgrounded with respect to that of the clause to which it is subordinated, a postposed adverbial may well convey the most important piece of information in the sentence. Whereas the presence of a preposed adverbial reflects a discontinuity of topic or situation, a postposed adverbial may well reflect topic continuity. In addition, only preposed adverbials establish the point of departure for the communication and indicate the primary basis for relating what follows to the context, whereas only postposed adverbials are used to highlight a turning point or complication in a story.

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THE ROLE OF LANGUAGE IN THE DISSOLUTION OF THE SOVIET UNION

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- 1 The area of study
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1 The area of study

The problem of unrest among the ethnic nationalities plagued the USSR since its inception in December 1922 (for a synopsis, see Suny 1990:243-249, Nahaylo and Swoboda 1990: 228-350, Alexeyeva 1985, Solchanyk 1990, Misiunas 1990, Olcott 1989, 1990. One crucial element in this problem had been Soviet language-planning practices.

This problem of nationalities resulted from the Revolution and its aftermath, the manner in which the USSR was organized, and the means whereby the Communists co-opted

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the nationalities to counter the Whites and other nations' invading armies (Pipes 1968, Seton-Watson 1986, Szporluk 1990). These nascent republics utilized language as a means of ethnic demarcation, for:

Early Soviet nationality policy spawned a generation of cultural entrepreneurs, who enthusiastically attended to the unification of their languages...Encouragement was given to purely cultural expression in non-Russian languages, which gave some leeway for the development of literatures. The intent of the policy for the managers of the Soviet state was, by giving nonpolitical ventilation of cultural expression, to remove insecurities and fears of forcible assimilation and thereby to promote integration...The Soviets have nurtured into life and provided cultural equipment for what has become, in Fishman's definition [Fishman 1989:97-175, 269-367], nationalities where only ethnicity was visible previously. Their high resistance to Russification and integration was visible previously [and]...constitutes a major long-run problem for the Soviet Union (Young 1976:47).

The USSR Yearbook '90 (155) candidly admitted a necessity "to secure for all citizens the right to be taught in their native languages..., to use their native languages in public life, and to preserve and develop their ethnic traditions..." This statement implied that the USSR's language policy had not been successful either in adequately providing nationalities their language rights or in fulfilling the Communist Party of the Soviet Union's (CPSU) goal of creating a non-ethnic "Soviet people" (for USSR language policies, see Lewis 1972:49-89, Comrie 1981:21-29, Bruchis 1982:3-41, Kozlov 1988:159-188, Anderson and Silver 1990; for the concept of "the Soviet people", see Pipes 1968:296-7, Fedyshyn 1980, Rasiak 1980, Rothschild 1980, Szporluk 1990:7-8).

This study examines how language functioned with various dynamics of cultural pluralism in the enhanced ethnic mobilization and resultant dissolution of the USSR.

2 The Soviet Union's multilingualism

The USSR was "one of the world's most ethnically heterogeneous states, in terms of both the number of ethnic groups...and the diversity among them" (Clem 1988:3). The USSR contained over 100 ethnic groups (Clem 1988:4), of which 22 nationalities had populations of one million or more according to the 1989 census. There were 15 union republics named for nationalities, and these 15 titular nationalities comprised 90.3% of USSR population (Anderson and Silver

1989:610). Because of this concentration, this study focuses on these 15 nationalities, but the dynamics which operated to separate union republics from the union also operates now with smaller ethnic political divisions.

Helene Carrere d'Encausse noted that "political linguistics represent Moscow's most successful accomplishment" (1979:165). In the early 1930s there were approximately 130 languages in the USSR, many the product of official encouragement of "small dialects, the creation of new written languages, and the incorporation of new tongues into the educational system" (Treadgold 1986:391; see also Comrie 1981:1). The number of ethnic groups is not equal to the number of languages. For one thing, some groups switch languages. The Soviet Jews, for example, switched from several languages, primarily Yiddish, to Russian. In 1929, 71.9% claimed Yiddish as their native language; in 1970, only 17.7% did (Lewis 1972:139, Treadgold 1986:392). Also, an ethnic group may have more than one native language.

Bilingualism made major advances, for in 1989, 84% of the non-Russians claimed their nationality language as native; 9.9% of the non-Russians claimed Russian as native and failed to claim their nationality language as second (Anderson and Silver 1990:96). However, in claiming second languages, 5.4% of non-Russians claimed their nationality language, 48.1% claimed Russian, 2.2% claimed that of another nationality, and 44.3% claimed no second language. 55.7% of non-Russians were bilingual, almost a majority of them in Russian (Anderson and Silver 1990:97 and 612-613:Table 1 (reproduced below)). Seven nationalities with over one million population did not have a Soviet Socialist Republic (SSR):

- Tatars: 6,915,000 with 25.5% living in their Autonomous Soviet Socialist Republic (ASSR). Two large Tatar groups, the Volga Tatars and the Crimean Tatars, are combined for this total.
- Germans: 2,036,000 (Stalin having dissolved their ASSR during World War II).
- Jews: 1,451,000, only 0.6% in their Autonomous Oblast (province), including the Georgian Jews, Central Asian Jews, Jewish Tats, and Crimean Jews (Krymchaki).
- Bashkirs: 1,449,000 with 59.6% living in their ASSR.
- Mordvinians: 1,154,000, 27.1% living in their ASSR.
- Poles: 1,126,000, also without a nationality area (Anderson and Silver 1989:612-613).

Table 1 shows the nationalities' populations by SSRs, the third column giving the percentage of the nationality population living in the titular republic. The percentage of the republic's population which is the nationality is given in Table 2, with notes on larger concentrations of other ethnic populations. Table 2 also shows the amount of Russian immigration into the union republics, an immigration which constituted a major component of the sociolinguistic dynamics, for many of these Russians might have opposed an official language were it not Russian.

Table 1. Soviet Union Republic Nationalities - 1989 census:

<u>Nationality:</u>	<u>population:</u> (thousands)	<u>pop. in SSR:</u> (thousands)	<u>percentage of</u> <u>nationality:</u>
Russians	145,072	119,807	82.6
Ukrainians	44,137	37,370	84.7
Uzbeks	16,686	14,124	84.6
Belorussians	10,030	7,898	78.7
Kazakhs	8,138	6,532	80.3
Azerbaizhanis	6,791	5,801	85.4
Armenians	4,627	3,082	66.6
Tadzhiks	4,217	3,168	75.1
Georgians	3,983	3,789	95.1
Moldavians	3,355	2,791	83.2
Lithuanians	3,068	2,924	95.3
Turkmenians	2,718	2,524	92.9
Kirgiz	2,531	2,228	88.0
Latvians	1,459	1,388	95.1
Estonians	1,027	963	93.8

(From Anderson and Silver 1989:612-3)

The cultural pluralism which affected language policy can be grouped into two major forces—the centripetal, which moved persons towards adopting the Russian language and assimilating into Russian culture, and the centrifugal, which preserved native language and culture, representing mobilization towards secession. Both forces are composed of various cultural dynamics; for example, interactions surrounding religion, race, caste, region, cultural identity, economic status, educational opportunity, living conditions, environmental issues, modernization, political opportunity and other issues (for dynamics affecting ethnic identification, see Young 1976 and Horowitz 1985; recent studies of such dynamics within Soviet nationalities are Allworth 1980, Rockett 1981, Bruchis 1982, Connor 1984, Alexeyeva 1985, Kreindler 1985, Conquest 1986, Motyl 1987, Friedberg and Isham 1987, Sacks and Pankhurst 1988, Kozlov 1988, Ramet

1989, Hajda and Beissinger 1990, Hosking 1990, Nahaylo and Swoboda 1990, and Starr 1990).

Table 2. Percentages of SSR Ethnic Populations:

<u>Nationality:</u>	<u>%</u>	<u>% Other major ethnic groups</u>
Russians	83	numerous other groups in ASSRs and autonomous oblasts and areas
Ukrainians	74	21 Russian; 1 Jews; 1 Belorussian
Uzbeks	69	11 Russian; 4 Tatar; 4 Kazakh; 4 Tadjik; 2 Kara-Kalpak; 1 Korean
Belorussians	79	12 Russian; 4 Pole; 2 Ukrainian; 1 Jews
Kazakhs	39	38 Russian; 6 Ukrainian
Azerbaizhanis	78	8 Russian; 8 Armenian
Armenians	88	5 Azerbaizhan; 2 Russian; 2 Kurd
Tadjiks	59	23 Uzbek; 10 Russian
Georgians	69	9 Armenian; 7 Russian; 5 Azerbaizhan; 2 Ossetian
Moldavians	64	14 Ukrainian; 13 Russian; 4 Gagauz; 2 Jews
Lithuanians	80	9 Russian; 7 Poles; 2 Belorussian
Turkmenians	68	13 Russian; 9 Uzbek
Kirgiz	48	26 Russian; 12 Uzbek
Latvians	54	33 Russian; 5 Belorussian; 3 Ukrainian; 3 Poles
Estonians	65	28 Russian; 3 Ukrainian; 2 Belorussian

Compiled from USSR Yearbook 1990:90-149, and corrected from Anderson and Silver (1989) whenever possible; percentages have been rounded to the next highest whole number; balances less than 100% are other groups.)

3 Centripetal and centrifugal forces

The centripetal force moving a non-Russian toward assimilation can be termed Russification in contrast to forces which move a non-Russian towards support of the Soviet government, which has been termed Rossification. Szporluk explains the difference; the Russian Empire

never became a Russian nation-state. Instead, in the words of Ladis K. D. Kristof, it promoted 'Rossification', which meant 'the development of an unswerving loyalty and direct attachment to the person of the tsar, by God's will the sole power-holder (*samoderzhets*) and head of the church.' The essence of 'Rossification' lay in Orthodoxy, not in Russianism. 'The Orthodox idea, not the Russian tongue or civilization, was the *spiritus movens* of the Tsardom. Russia was first of all Holy, not Russian.'...In this respect, 'Rossification' resembles the post-revolutionary policy of Sovietization, with its principle of 'national in form, socialist in content.' [Stalin's phrase]

'Russification,' on the other hand, aimed at making the non-Russian subjects of the state Russian in language and identity (Szporluk 1990:2).

Thus, the Tsarist Empire was not officially Russian (*Russkaia Imperiia*); used instead was the official *Rossiiskaia Imperiia* (Szporluk 1990:2). Some Russian nationalists attempted to Russify the ethnic groups but were unsuccessful (Szporluk 1990:3). During the Revolution, those nationalities which had nationhood ambitions attempted to fulfill them. Finland and Poland were successful, and Estonia, Latvia and Lithuania remained independent for about 20 years. Other attempts in the Ukraine, Transcaucasia, and the Far East were overcome by the Red Army. The Revolution nearly restored the Russian Imperium.

"Russification" and "assimilation" in Russian are synonymous; "Rossification", however, represents the appreciation of nationality and language rights, combined with political loyalty to a supranational union (USSR) of equal nationality republics. In the spectrum ranging from total assimilation to secession, Rossification stands midway. A speaker of language X could thus choose to be Russified and possibly assimilate, be Rossified and be bilingual in language X and Russian (the so-called "internationalist language" of the USSR), or be monolingual, bilingual or multilingual, the latter choice representing a person's probable opting out of union (then interrepublic and now commonwealth) participation.

Given this spectrum, it is easy to see the political motivation behind the USSR's push to make its citizens bilingual in their language and Russian. However, this push for bilingualism mostly had a Russification, not a Rossification, goal. (See Nahaylo and Swoboda 1990:44-80 for a discussion of "the national contracts" and their subsequent cancellation leading to Russification.) With these distinctions in mind, we can now examine a sampling of dynamics which contributed to the centripetal and centrifugal forces which were active in the USSR and which led to its demise.

3.1 The CPSU and the national populist fronts

The USSR was not, in the usual sense, a Russian empire; it was Communist—"the first empire in history to be ruled by a political party." And "from that fact flow the anomalies and contradictions of this unprecedented multi-national union" (Hosking 1990:77). As such, the Communist Party of the Soviet Union (CPSU) constituted a major centripetal dynamic; until five years ago, if one wanted to do politics, the CPSU was "the only game in town."

Lenin recognized the contributions that the separate nationalities could make to the revolution, and "won a civil war that made him and his party the heirs to the tsars" (Seton-Watson 1986:23). Lenin rejected Russification, "recognizing the potential revolutionary force underlying the national discontents of non-Russians"; the Red slogan of national self-determination contrasted with the White's "one indivisible Russia" (Seton-Watson 1986:24). "In Lenin's lifetime, the conventional wisdom had been that Communists must avoid two deviations, 'Great Russian great-power chauvinism' and 'local bourgeois nationalism'," but these two polarities dominated in turn as long-range results of fluctuations in the economy (Seton-Watson 1986:24-25). There was a relationship between the economic success of the CPSU and its nationalities policy: bad times, bad feelings and nationality unrest; good times, and national antagonisms are somewhat placated, much less obvious.

At the present time, the USSR has been dissolved and the residues of its economy portends disaster, while the CPSU solely shoulders the responsibility for what is perceived as the failure of Communism. Three years ago, when Gorbachev said that the USSR had not found a way to overcome backwardness, even then, in the process they [were] acknowledging that in relation to the West they continue to remain 'backward' in science, technology, standard of living, and so forth. The most fundamental claim of the Revolution's historical legitimacy—the transformation of the Soviet

Union into a modern society and the creation of a civilization that was to be an alternative to the West and free of its drawbacks—[was] thus denied. The Soviets now admit that they have not found a socialist way out of backwardness and toward modernity...Indeed, the recently launched revolution [*glasnost* and *perestroika*] is necessary to stop the USSR from falling further behind 'the West' (Szporluk 1990:9-10).

Schroeder noted that "except for Azerbaizhan, all republics experienced the marked slowdown of national income and industrial production characteristic of the Soviet economy during the past fifteen years" (Schroeder 1990:47). Azerbaizhan, previously aided by an oil economy, where fields are now almost depleted, is rapidly becoming more typical (Table 6 in Schroeder 1990:55).

Although the CPSU constituted a dynamic, major centripetal force, and had vast resources, it was undergoing challenge (Keller 1990, Beissinger and Hajda 1990:318-320). Most opinion concurred with Goble, however, that "the central leadership has at its disposal a variety of levers to effect its will" (Goble 1989:12, 1985:83). Motyl agreed when answering the question, *Will the Non-Russians Rebel?*, and argued that CPSU control allowed no access to the public sphere for those elites capable of mobilizing the masses, that the power resident in the KGB and the military mitigated against the possibility of open rebellion by non-Russians (Motyl 1987:168-170). The embargo against Lithuania in 1990 and the military "crackdown" in the Baltics in 1991 only reinforced his arguments, until the complete dissolution of the USSR in December 1991 proved them obsolete.

Goble recalled that "forty years ago, a senior party official in Moscow reputedly told a Baltic Communist that Soviet nationality policy consists of having enough boxcars ready" (Goble 1985:83). Later, Goble noted that "Moscow would clearly sacrifice almost all its other policy goals in order to maintain the integrity of the Soviet Union. And the...apocalypse—a return to significantly greater repression—needs to be rethought" (Goble 1989:12). The CPSU was unwilling to incur the costs of such a policy, costs "far beyond the ability of the authorities to pay" (Goble 1989:12), but events demonstrated that the conservatives (such as the radically communistic secret society, Soyuz) had to try, and when the attempted coup in 1991 failed, the CPSU was shown to be politically bankrupt, unable to summon the citizens to its cause.

Gorbachev probably hoped that his restructuring could best thrive in an atmosphere where open and candid debate

could aid his cause against the conservatives. Openness, however, allowed simmering tensions to boil over. "As the conditions of *glasnost*' broadened the perceived right of public debate, the various national minority communities organized to protest publicly the continuing impact of Stalinist nationality policies" (Olcott 1989:407).

The Estonian Front for *Glasnost*', organized in May 1988, was "the first independent mass organization formed in the USSR", a model for similar popular fronts in other republics (Olcott 1989:412). Two demands that each had were that the SSR language become the official language, and that Russian immigration be sharply curtailed or completely halted. These demands arose because "Moscow failed not only to delineate systematically the limits of their cultural autonomy, but also to protect the cultural rights of minority nationalities in union republics" (Olcott 1989:415). The result was that Moscow had "shown itself unwilling to allow the basic relationship between the center and the union republics to be redefined" (Olcott 1989:419), even though Gorbachev had instigated a new Treaty of Union, a supposed redefinition, due for ratification in 1991. Instead of a new union treaty, the USSR was dissolved and a commonwealth of 11 independent nations emerged. (At this time, Georgia has not signed the treaty of commonwealth, but may do so when its civil unrest ceases; the Baltic nations did not join the commonwealth.)

Creation of the popular fronts had allowed political participation outside the CPSU. "Under Gorbachev, the rate of political participation, particularly on a national basis, considerably outstripped the pace at which that participation was institutionalized. The result was that the Soviet political system destabilized along ethnic lines" (Beissinger and Hajda 1990:316). With the political system no longer able to handle such massive participation, the authority of the CPSU came under attack, primarily by the nationality popular fronts (Beissinger and Hajda 1990:317, Schmemmann 1990). When national popular fronts gained power, Russian nationals reacted to their loss of control by also organizing. The rise of the conservative Russians (such as Soyuz) in early 1991 is such a reaction to ethnic political polarization.

In 1990, Boris N. Yeltsin, president of the Russian SFSR, largest and most dominant republic, resigned from the CPSU with a score of other deputies, demanding that there be more speed in *perestroika*; for them, "the party was not all that relevant any more, and it seemed only a question of time before the notion would spread" (Schmemmann 1990).

Yeltsin was elected president of the RSFSR in June 1991, by a large margin of votes. With the CPSU under attack, the popular fronts, which captured many of the SSR communist parties (Beissinger and Hajda 1990:318-319) served as alternatives to the CPSU. Soon, "measures to reduce autonomy... led to demonstrations and even outbreaks of rioting, arson, and assaults on Russians" (Spechler 1990:292). As relations between the center and the periphery deteriorated, the centrifugal force increased and created opportunities for nationality language demands to serve as symbols for dissent. Politics no longer was done solely in Russian, but also in the nationality language through the nationality popular fronts; in time, the fronts demanded independence and won it with the collapse of the CPSU.

3.2 The imperial legacy vs. national identity

There was a concept in the USSR, articulated primarily by the Democratic Union, the non-nationality popular front, that the USSR was Eurasian, not a Russian state, "but one both Slavic and Turkic, European and Asian, Christian and Muslim" (Lev Gumilev quoted in Szporluk 1990:18). This concept sought to redefine the USSR, following the imperial legacy of the current borders, but in a new mode. These were leaders termed "empire savers," seeking either to preserve the empire through renewed Russian dominance or the establishment of an "all-Union" popular front that would preserve the empire as liberal, pro-Western and democratic (Szporluk 1989:26). Vladimir Balakhonov saw the most urgent task as restructuring the Russian people's consciousness, because they remained under the influence of an imperial mentality, and said, "The imperial instinct of the Russians is exceptionally strong, and as yet, we simply do not imagine a form of existence other than the framework of the present empire from Brest to Vladivostok" (quoted in Szporluk 1989:26).

Continued Russian nationalism fostered this imperial legacy, but it was interpreted several ways, a few benign, but many not. Spechler, in surveying Russian nationalism, noted that

there is an inescapable contradiction between Russian (indeed, any) nationalism and some basic tenets of Marxist-Leninism. The essence of nationalism—concern for the preservation and well-being of a single nation—places it in opposition to the internationalist or supranationalist orientation of Marxism-Leninism. Whatever their private sentiments, Soviet leaders have repeatedly affirmed their commitment to internationalism—i.e., to the well-being of all working people on an equal basis, regardless of nationality,

and to the eradication of national differences. This commitment and progress toward its attainment provide one of the most important legitimations for the existence of the Soviet system and, even more, for Russian rule over non-Russians (Spechler 1990:287).

That legitimation had been undercut by Gorbachev's programs, as Goble noted:

While Gorbachev is clearly a committed Marxist-Leninist, his attacks on Marxist-Leninist theory and on much of Soviet history as well as his generally technocratic approach have called into question the legitimating principle of the multinational Soviet state and opened the door to various choices and activism that ideology heretofore had proscribed. Besides legitimating the USSR, Marxist-Leninism served to curb non-Russian nationalism and many forms of Russian assertiveness. To the extent that the constraints inherent in Marxism-Leninism are lowered or removed, both Russians and non-Russians are likely to become more active, to explore their unique pasts, and to engage in activities that will exacerbate interethnic tensions (Goble 1989:4).

Motyl noticed that "no Soviet leader has ever turned his back on Russian hegemony, and in this sense, the Soviet Russian state is not unlike its nationally minded cousin" (Motyl 1987:42). Spechler detailed this concept:

A strong tendency within the Russian nationalist movement favors a more repressive approach to non-Russian peoples. Adherents of this view desire a more powerful, centralized state to facilitate greater Russian control over non-Russian areas. They admire the expansionist, imperialist policy of the Tsarist state and urge its Soviet successor to impose similarly 'undiluted' Russian rule. Some are even critical of Soviet federalism, which they would replace with a unitary state dominated by Russians...At the very least, these Russian nationalist are determined to preserve the Russian empire and would firmly repress what one of them calls the 'zoological nationalisms of the borderlands' that endanger the unity of the country. (Spechler 1990:291-292)

The imperial legacy still persists; many Soviet citizens now view the breakup of the USSR as little less than apocalyptic; however, there are still persons who think of themselves as *rossiianin* (without being ethnic Russian, *russkii*), who feel they are part of the 'Soviet people,' *sovetskii narod* (Szporluk 1989, 1990, Spechler 1990; see also Barghoorn 1986:32-33, for an interpretation of *sovetskii narod*). These persons, now assimilating, have their aspirations threatened by language policies and

cultural legacies now enforced by the newly independent ethnic nations.

A dynamic countering the imperial legacy was the basic composition of the nationality SSRs, republics in which most titular nationalities enjoyed a majority with their own language, culture, customs, and national consciousness. Organized so that the titular nationalities dominate, the SSRs became part of the centrifugal force, and the "very survival of the Soviet Union as a political entity" depended upon successfully finding "a non-imperial legitimating principle" (Beissinger and Hajda 1990:318). No such principle was found; with the collapse of the CPSU, its empire shattered.

As continued advocacy of the imperial legacy intensified reactions from nationalities other than the Russians, these reactions grew: "in both local and national arenas of conflict, Russians and non-Russians...continue[d] to find themselves at odds...[T]he violence between Azerbaizhanis and Armenians was similarly unimaginable. *Glasnost*' and *perestroika* [had] opened a Pandora's box of discontents and hopes, rendering all predictions of behavior impossible" (Olcott 1989:420-421).

Those groups favoring survival of the imperial legacy favored Russification and the continued forced learning of Russian, while those not supporting that legacy favored Rossification or secession and making *only* the nationality language official.

3.3 Soviet language policy vs. language preservation

Another centripetal force was the USSR's language policy. As Lewis has noticed:

The difficulty of studying language policy in the Soviet Union during the last fifty years is to identify at any time the exact target of a policy statement or expression of attitude, whether it is directed to language as ethnic symbol, to be favored in periods of stability and attacked during times of external threat; or language as the instrument of proletariat advancement and so to be distinguished at all times from its traditional 'nationalist' cultural associations. Language policy in the USSR is apt to oscillate because of the attraction of these two poles of influence. Writers seldom make any clear distinction between them and more often than not, confuse them. (Lewis 1972:51)

Whatever the policy statement, one policy goal had been to create a high rate of Russian use among non-Russians.

Lewis found that bilingualism in the nationality language and Russian depended upon many social variants: urbanization, contact with Russian speakers, religion, intermarriage, fertility rates, size of minority, social class, educational opportunity, presence of a nationality homeland, language family, and other demographic and political factors, including ethnic consciousness and cultural distinction (Lewis 1972). Anderson and Silver (1990: 96-98) found that the factors which best explain adoption of Russian nationality are urbanization, interethnic group contact, and traditional religion, and they show that in intermarriage the child of a Russian and non-Russian couple will choose Russian nationality outside the nationality's state, but within it, will probably choose non-Russian nationality (Anderson and Silver 1989:626 and 653:note 26).

Using the 1989 preliminary census figures, Anderson and Silver report the following percentages (judged to be accurate to within 2%) of ethnic people who claim Russian as either their mother tongue or their second language: Estonians 35%, Latvians 69%, Lithuanians 38%, Ukrainians 73%, Belorussians 81%, Moldavians 58%, Armenians 47%, Georgians 3%, Azerbaizhanis 32%, Uzbeks 22%, Tadjiks 30%, Kirgiz 36%, Turkmenians 28%, Kazakhs 75% (Anderson and Silver 1989:646:Fig. 18). More importantly, Soviet language policy had been perceived by the nationalities as resulting in increased bilingualism in Russian, thus forming a potential threat to the survival of the nationality language.

Comrie, writing in 1980, noted:

Current trends suggest that all but the largest, most consolidated speech-communities will probably eventually go over to Russian (or one of the other large speech-communities); with some other small speech-communities this process is almost complete, but in many other instances it seems that we are in the middle of a very long process of gradual linguistic assimilation. It is unlikely that this trend will be reversed by discouraging the transference of linguistic allegiance from local languages to Russian where this is already taking place as a natural process (Comrie 1981:37).

Writing two years earlier, Pool reached a somewhat similar conclusion:

The...effort...to universalize competence in Russian...is moving quickly toward success among citizens who do not speak one of the 15 favored languages, and also among those whose native languages are closely related to Russian, or who are displaced from the home republic of their mother

tongue. But gross gaps exist in the remaining republics between plans and performance—gaps that will not necessarily become easier to close as the republic languages expand their utility at the expense of Russian. If the observed trends and policies continue, the USSR will move in the direction of being a quindecanational and quindecalingual state. Russian will be the national language and—for those who need it—the Soviet link language, but not the universal, unique language of the union. Fourteen other languages will thrive under conscientious cultivation; but a hundred tongues will slowly shrivel, officially unlamented, into extinction (Pool 1978:240).

Russian continued as the lingua franca or "internationalist" tongue, affecting and in turn being affected by the other languages. (For an example of influences of Russian on Belorussian and vice versa, see Wexler 1985; for the more political attack on Moldavian, see Bruchis 1982:45-69). In this capacity, the creation of bilinguals speaking the nationalist languages and Russian as a result of Soviet language policy represented a centripetal force, and whether or not it led to assimilation, "from the regime's point of view, it is obviously a necessary first step in a desirable process, a step the leadership has been anxious to promote" (Dunlop 1986:270). But the increase in bilingualism and the resultant switching to Russian bred its own resistance.

"Efforts by the regime to expand Russian language instruction and somewhat curtail the use of local languages... caused thousands to sign petitions and take to the streets in angry protest" (Spechler 1990:292). In republic after republic, the concern that the nationality language was endangered by Russian mobilized nationality united fronts to push for making their language official. (For examples, see Nahaylo and Swoboda 1990:290-300.) Not surprisingly, the Belorussians, the most bilingual SSR (Anderson and Silver 1989:646:Fig. 18), were the first to form a coalition for the preservation of their language (Nahaylo and Swoboda 1990:281).

Previous powerful arguments against Russification had begun to change the thinking of intellectuals in the SSRs; Ivan Dzyuba's *Internationalism or Russification? A Study in the Soviet Nationalities Problem* (1968) portrayed these problems in the Ukraine (Nahaylo and Swoboda 1990:150-151), and an anonymous *Letter to a Russian Friend* (1979) made a defense for the Belorussian language, becoming one of the classic *samizdat*' to receive wide distribution. Lewis rather

early noted that Soviet policy created resistance on the part of ethnic nationality languages:

In spite of the extraordinary care and drive of the USSR in pursuing its language planning processes by whatever strategies and techniques, what most strikes the observer in the end is the resilience of the large number of 'national languages', several of them quite small, and the tenacity with which they are maintained. The well-documented but almost mystical unwillingness of languages to submit to their own demise accounts in large part for this.

But part of the explanation so far as concerns the USSR,...is the undoubted fact that however the language complex is managed the vernaculars have to be used, and for that reason they have to be safeguarded... (Lewis 1972:293).

Even by 1990, "linguistic and ethnic affiliations of non-Russians [had] not changed mechanically as a result of policies introduced by the central Soviet authorities" (Anderson and Silver 1990:122). Soviet language policy caused the nationalities to begin safeguarding their languages, creating domains (such as the home and religious institutions) in which they were protected. "For many groups...ethnic attachment, as measured by self-reported nationality, remain[ed] quite stable, surprisingly so for some (Ukrainians, Belorussians)" (Anderson and Silver 1990:123). As Anderson and Silver further observed:

Gorbachev's policies of *perestroika*, *glasnost*', and democratization helped to stimulate ethnic consciousness as well as the formation of organized popular fronts and other groups that openly sought greater cultural, economic, and political autonomy for the non-Russian peoples. We would expect this growing national self-awareness to retard and, in some cases, to reverse processes of linguistic and ethnic assimilation. Preliminary data from the 1989 Soviet census, we believe, provide some evidence of such change in the pace of assimilation. (Anderson and Silver 1990:123)

The increased bilingualism of Soviet language policy thoroughly undermined its own goals, making it become centrifugal; nationalities perceived their languages under attack and threatened, and this threat became one more element in their dissatisfaction with USSR policy and sovereignty.

3.4 Soviet education vs. nationality language preservation

The 1989 CPSU platform on nationalities reiterated that parents have the right to choose the language in which their

children will be educated (USSR Yearbook 1990:155). Although on the surface this policy seemed to be democratic and supportive of nationality languages, the reality of its practice made it quite something else, particularly when viewed historically.

Immediately after the Revolution, there was an effort to create educational opportunities in as many different languages as possible, thus co-opting the nationalities to the new Soviet state (Pool 1978:226; Kreindler 1985:349-353). However, after the twenties, there was a change and many efforts for education in languages with small populations were dropped with a concomitant turning to Russian (Kreindler 1985:353-357; Anderson and Silver 1990:108). In 1938, a decree made Russian a mandatory subject for study in every school, even in nationality language schools, (Anderson and Silver 1990:108), leading to a "differentiated bilingual" education. The model schools for the nationalities remained ones in which the primary language of instruction was the nationality's, but "it became acceptable for non-Russians to attend Russian-language schools"; however, "if they were to complete their secondary education, most children belonging to non-SSR nationalities had to attend schools with Russian as the language of instruction" (Anderson and Silver 1990:108-9).

A 1959 law (which became Article 45 in the 1977 Constitution) led to a "highly differentiated bilingual education," for it "gave parents the right to choose the language of instruction for their children." This change was soon followed by a "decrease in the 1960s and 1970s in the number of languages used as the primary medium of instruction, as well as in the highest grade level at which the non-Russian languages might serve in that capacity" (Anderson and Silver 1990:109). Parental choice led to several types of schools: type one, where Russian was the medium of instruction and the local language was not studied; type two, where Russian was the medium but the local language was studied as a subject; and type three, where a non-Russian language was the medium for most subjects except Russian language and literature, studied as subjects. "Type 2...may not actually be available even as an option in some areas, particularly above a certain grade level" (Anderson and Silver 1990:101). It was not uncommon for educators to present the choice of schools to parents incorrectly, usually by not acknowledging the possibility of a choice between Russian immersion and the type 3 national school; commonly, the educators asked if the parents wanted their children to know Russian, and with a positive reply, placed the child in a type 1 Russian only school (Anderson and Silver

1990:101). The result was that, in the USSR, "parents [did] not 'choose'—their children simply [studied] Russian" (Kreindler 1985:355).

The further in the curriculum non-Russians could study their national language, the less likely they were to abandon it; if Russian was the primary medium of instruction, then students would tend to claim Russian as, at least, their second language (Anderson and Silver 1990:109). "In the post-war years, provision (reduction) of native-language schooling for a given nationality [had] reportedly been based in part on the prevailing degree of bilingualism among children" (Anderson and Silver 1990:112). In these ways, educational institutions provided a part of the centripetal force by promoting either adoption of Russian as the native language or at least as a second language.

The nationality popular fronts called not only for official languages but also for schooling to be in those languages and not in Russian (Nahaylo and Swoboda 1990:261-262). Some popular fronts called for the setting aside of Article 45 of the 1977 Constitution. For example, in the Ukraine grew the idea that the "Ministry of Education and not parents determine the language of instruction in schools in accordance with the national composition of the children" with the guarantee that the nationality "language, literature and history be made compulsory subjects where teaching was in Russian" (Nahaylo and Swoboda 1990:272); then Russification through language in education would be halted and the nationality language's maintenance reinforced. These demands by nationality popular fronts represented a growing reaction to Soviet education practices; passage of such measures in the SSRs created a strong dynamic of the centrifugal force and mitigated against further Russification. These demands also moved the nationalities toward Rossification and, in a very short time, to secession.

3.5 Nationality cadres vs. mass politicization

It was common practice for nationality CPSU members to receive their career boosts from Moscow, which had a vested interest in seeing that leaders in the SSRs were sympathetic with them. As long as the CPSU controlled political patronage, the loyalty of the nationality cadre was to the party and constituted a centripetal dynamic; however, "in an ethnically pluralistic society, the same political decisions that have a unifying effect under conditions of low political participation can have a disintegrating effect when there is large-scale political participation" (Beissinger and Hajda 1990:313). With the destabilization of "the Soviet

political system...along ethnic lines" (Beissinger and Hajda 1990:316), politics become affected by mass action, thereby placing the nationality cadres in an unenviable position—between centralized authorities and the mobilizing people demanding more autonomy along with preservation of their nationality languages and cultures.

Following a suggestion of Andropov, Gorbachev attempted an "inter-republic exchange of cadre," which reversed Brezhnev's policy of nationality cadre longevity in office (Olcott 1989:403-404), thus making nationality cadres serving in SSRs other than their own extremely dependent upon Moscow. Simultaneously, Gorbachev allowed the top of the CPSU to have a lower representation of nationalities, making "no effort to bring non-Russian elites into the central political leadership" (Burg 1990, 31; see also Spechler 1990:296), and a "number of loyal non-Russian elites...expressed their impatience with the lack of representation of their nationalities within the Kremlin" (Beissinger and Hajda 1990:319). "Republic elites...had to seek a rapprochement with the dominant nationality in their charge and to represent its concerns precisely because in most cases they [could] not apply the kind of coercion they regularly had applied in the past" (Goble 1989:6).

Gorbachev's "promotion of efficiency" was "essentially anti-ideological" and "necessarily work[ed] against some, if not all, demands of non-Russians. For example, he...undercut the affirmative-action programs in the republics, on the grounds that they [were] inefficient and a form of 'reverse discrimination'" (Goble 1989:4), causing the nationality cadres to have to represent highly unpopular centrist decisions to a newly mass-politicized constituency. Language laws protecting Russian language minorities' use of Russian in the 14 non-Russian SSRs were a major component of those unpopular centrist demands; viewed from a game-theory perspective:

If the Soviet state accedes to language demands, the political focus of these demands will shift from Moscow to the nationalist elites ruling in the regions. These elites will face a dual pressure: from minority populations, who will seek language rights, and ask for tolerance; from regional nationalists (those who move first...toward full use of the regional language in all social, political and economic domains) who will seek faster movement towards regional rationalization. Balancing those two pressures will be a full-time effort for the titular-national elites...(a ms. draft of Laitin, Petersen and Slocum in Motyl 1991).

When added to other policies, these demands undercut the nationality cadres' position as spokespersons, forcing a choice between loyalty to Moscow or the nationality, countering their centripetal dynamic and directing the cadres' efforts toward the centrifugal (see Burg 1990:36-37). The nationality cadres became a centrifugal dynamic, adding their weight to nationality language maintenance and spread, on the one hand, and against the protection of the use of Russian by Russian minorities in the nationality SSRs. As with language, so with politics, and the SSRs became politically as well as linguistically independent, led by cadres who wanted to keep their jobs when possible.

3.6 Religion (or the lack thereof) vs. nationality religious traditions

While the USSR had "encouraged ethnic identification based on language," it had "systematically combated ethnic identification based on religion" (Ramet 1989:33), primarily because religion was a reinforcing element of ethnicity (Ramet 1989:5, Bocuirkiw 1990:148-149, Young 1976:51-60). The CPSU had relentlessly attacked religious belief because, in some cases (Roman Catholicism or Islam), it led to the support of an external political authority (Ramet 1989:40). "As far as successful communist parties are concerned, they can tolerate no organization or institution that might possibly offer an alternative focus of loyalty...in the countries in which they govern" (Sugar 1989:45). "Moscow has sharply criticized religion when it serves to inflame anti-Soviet nationalist sentiment" (Olcott 1989:418).

The inverse of this concept was that the absence of religion, or more accurately, the espousal of atheism, was part of the centripetal force moving a person closer to the party and state. By replacing religious affiliation with atheism, the state enhanced its chances to gain the person's ultimate loyalty in the absence of other loyalties to the ultimate.

When the religious institution was finally seen as a means of building "internationalist" or Soviet-centered loyalties, it was co-opted by the state. Religious policy re-oriented toward the end of the Brezhnev era so that the Russian Orthodox Church was under less attack and soon became co-opted as a part of the centripetal force (Bociurkiw 1990:160-165). In a 1981 study of atheist indoctrination in the Western Ukraine, what was found was "a striking partisanship in the party's antireligious propaganda underlining once more the appreciation by the Soviet authorities of the integrating, 'patriotic' role performed by the imperial

[Russian Orthodox] Church in the non-Russian parts of the USSR..." (Bociurkiw 1990:159-160).

Anderson and Silver found that religious affiliation was important in the assimilation of non-Russians: "in the recent past, the groups that were changing most rapidly to Russians were non-Russians who were of Orthodox traditional religion and whose titular areas in the Soviet federation were at a lower status than that of union republic" (Anderson and Silver 1989:626). Thus religious tradition could also be a salient factor in assimilation, a part of the centripetal force. We need to remember the intrinsic tie of language to religion; the nationality religion institutionalizes a domain for the nationality language and reinforces ethnic identity, becoming a centrifugal dynamic. Conversely, the Russian Orthodox Church or the advocacy of atheism operated as a centripetal dynamic.

With the co-opting of "The Imperial Church" by the CPSU (Bociurkiw 1990:162-165), a tension was set up opposing the centrist (non-) religious body (the CPSU for atheism; the Russian Orthodox Church for its believers) to the nationalities' religious institutions. For example, "Soviet Moslems contrasted Moscow's benign attitude towards the Russian Orthodox Church with its treatment of Islam" (Nahaylo and Swoboda 1990:302). The Ukrainian Uniate Catholic Church, the Georgian Orthodox Church, the Armenian Orthodox Church, the Roman Catholic Church of Lithuania, the Lutheran Churches of Latvia and Estonia, the traditional native sects such as the Khlysty (Flagellants), Dukhobors (Spirit-Wrestlers), and the Molokans (Milk-Drinkers), the transnational religions such as Islam and the Jews (Sunni and Shiite) (for a catalogue, see Bociurkiw 1990:150-159), Ramet 1989)—all provided a language domain for their nationalities and thus countered either the centrist official policy of atheism or centrist-co-opted Russian Orthodoxy. Moreover, "during the 1960s and 1970s, a religious revival occurred among the intelligentsia and student youth, associated in many cases with the rise of ethnonationalism" (Bociurkiw 1990:152). As an example, the Lithuanians experienced a merging of religion (Roman Catholicism) and the nationality popular front (Sajudis) that is reminiscent of Poland's blend of Solidarity and Catholicism (Girnius 1989:129-137). There, the role of religion became clear and stringent: "Catholic belief is Lithuanian. Atheism is Russian. To become an atheist is to draw closer to Russian/Soviet culture and to lose a vital part of the Lithuanian Volksgeist" (quoted in Ramet 1989:30).

While atheism or the imperial church added to the centripetal force, the other religions in the USSR added to the centrifugal force, aiding persons to identify with the nationality on the periphery against the center's Soviet-approved beliefs. Furthermore, the ritualistic tie between religion and language placed the nationality religious institution in strong support of the nationality language.

3.7 The military vs. itself

As early as 1923, the Ukrainians accused the Red Army of being an instrument of Russification; that it was can be seen in the fact that the language of the Red Army was exclusively Russian, ethnic Russians predominated in the professional cadre, and recruits' postings seemed to follow unofficial rules that favored Russians or Russified elements for special or elite combat services (Rakowska-Harmstone 1990:73). Two further rules aided in this judgment: "each military unit and subunit must be ethnically mixed," and "no soldier should be stationed in his home area" (Rakowska-Harmstone 1990:83). For the centripetal force, there was also the institution of military training and indoctrination, as Rakowska-Harmstone reported:

Military socialization in the Soviet Armed Forces aims to achieve two levels of integration of servicemen. The first level is the essential minimum of functional integration in terms of linguistic and behavioral conformity—or, in short, obedience to orders. The second and optimal level is an attitudinal (cognitive) integration, which implies the internalization of the regime's personal weltanschauung, including their enthusiastic acceptance of the notion of self-sacrifice for the Socialist Motherland....The political education must prevail over ethno-cultural and political perceptions of the serviceman's original social milieu and the attitudes held there, if these are in conflict with the official message. (Rakowska-Harmstone 1990:74-75)

The military trainers, professional military cadres, were "very much the bearer of the 'Russian message', in composition as well as in attitudes....Officer's attitudes in general, especially in the senior ranks, [were] openly centralist and Russian nationalist, which [meant] that there [was] little sympathy for autonomist demands..." (Rakowska-Harmstone 1990:90).

"With the USSR's universal military training program, most young men were exposed to such indoctrination. Draftees were forced to learn a minimum of Russian so they [could] understand orders, and even if they [had] very poor Russian

or none, they [would] still be exposed to constant Russian linguistic influence" (Rakowska-Harmstone 1990:81).

In the military, Russification arrived at the point of a bayonet; a recruit in the Red Army who was Muslim and did not speak Russian would very likely think so, from the day he was drafted. A Muslim recruit would face functional integration, for "total ignorance of the dominant language... indicate[d] non-integration in terms both of alienation and inability to function" and he would be classified not in group A (integrated attitudinally and functionally, i.e., Russian or Russified) or group B (integrated only functionally, i.e., non-Russian but bilingual), but group C (non-integrated, i.e., rural non-Russian); because of his nationality, he might be classified in group D (dissident elements, i.e., nationalists who seemed politically unreliable such as Western Ukrainians and Belorussians, Balts, Jews, and Crimean Tatars) (Rakowska-Harmstone 1990:77-78). Because of such military practices, Muslims would be

as uninterested in military service as they have been in joining the mainstream of Soviet urban and industrial life or in learning the Russian language, especially because the treatment of Muslim soldiers in the Soviet forces has done little to make the prospects of a life-long military career attractive... (Rakowska-Harmstone 1990:80-81).

Ethnic prejudice in the ranks, along with the isolation, close proximity, and enforced confinement that characterize military life tended "to sharpen perceptions and intensify antagonisms" (Rakowska-Harmstone 1990:87), making military life for many non-Russians miserable:

By all accounts, induction [was] a traumatic experience for a Soviet conscript, especially a unilingual non-Russian who [was] thus immersed into a Russian-speaking environment. The conscripts [underwent] an initial four to six weeks of orientation, drill, and training which, on the evidence of former Soviet officers, [was] a 'very hard month in a soldier's life'...[T]he first year of the service anywhere [was] very difficult because of the informal system of merciless hazing of 'younger' (first-year) draftees by 'older' (second-year) men. This...customarily [led] to excesses of brutality, sometimes even the loss of life...Ethnic antagonisms... further exacerbate[d] the hazing. (Rakowska-Harmstone 1990:82)

Even being assigned with other non-Russians presented problems:

Antagonism between Muslims and Europeans [was] one of the two basic ethnic cleavages in the ranks; the other [was] between Russians and non-Russians. The non-Russians [were] also divided by conflicts of their own, such as the one between Armenians and Azerbaizhanis, and some intra-Central Asian feuds. Even groups with limited national consciousness '[woke] up' to their national identity under the impact of the service, and the greater functional integration that [was] undoubtedly achieved in the service [was] often accompanied by an enhanced ethnic militancy after the soldier returned to civilian life (Rakowska-Harmstone 1990:89).

In the 1980s, ethnic conflict in the USSR's armed forces became visibly intensified, and it was noted then that:

The Afghan conflict [had] done much to exacerbate and expose ethnic antagonisms within the ranks. The gap between Muslim soldiers—seen as unreliable and used primarily for non-combat tasks—and the Europeans grew even wider, and ethnic violence became commonplace (Rakowska-Harmstone 1990:91).

A program started at the end of the Brezhnev era included inducements for non-Russians to enter the professional military service and even the officer corps, combined with intensified programs of Russian language instruction and political education, but it brought disappointing results because of strong resistance by the targeted nationalities (Rakowska-Harmstone 1990:91). Nationality popular fronts (such as those in Lithuania and Latvia) often hid their members who had been drafted.

In the USSR, the military was its own worse enemy, and the experience of military life for most non-Russians resulted in a heightened primordial identity, the centripetal dynamics of military education being outweighed by the hazing, harassment, and general antagonism faced by non-Russian draftees within a milieu permeated by the Russian language, and the psychological association between that milieu and its language enhanced the linguistic centrifugal dynamics.

3.8 Centralized economic planning vs. nationality environmentalism

A major dilemma for the USSR was "how to decentralize decision making without losing economic and/or political control" (Schroeder 1990:44). The economy of the Soviet Union had always been directed from the center, and "Gorbachev...continued to insist on the primacy of state interests in the management of the periphery" (Schroeder

1990:63). Speaking to the 19th Party Conference, he warned that "those who believe that decentralization is opening up the floodgates for parochialism or national egoism will be making a grave mistake" and that "any obsession with national isolation can only lead to economic and cultural impoverishment" (Schroeder 1990:63). Moscow utilized economic control in the boycott of Lithuania after its declaration of independence in 1990, thus fulfilling Gorbachev's prediction of "economic...impoverishment." "A principle theme of recent policy statements [was] the need to deepen interrepublican—and thus internationality—interdependence. The leadership, no doubt, regard[ed] the success achieved thus far as a great political benefit" (Schroeder 1990:65). The nationality SSRs had to look to Moscow for their continued economic development, and they had very little to say about what was developed and what was not. The vast GOSPLAN apparatus that directed centralized economic planning, combined with policies that sought to deepen SSR interdependence, constituted a dynamic of the centripetal force, but it, too, was being countered in the SSRs.

"In many of the national republics, nationalists want[ed] to use increased local control to protect the local environment and, where necessary, to curb all-union development schemes" (Olcott 1989:400). Examples of protests about environmental issues were numerous and provided insights into how this increased concern had fostered the perception by the nationalities of a centralized, blind, uncaring economic-development planning process in Moscow.

In November and December of 1986, the Latvians and Lithuanians marched against two economic development schemes—the Latvians demanded that Moscow reconsider constructing a hydroelectric power project on the Daugava River and were successful in arousing enough public support to have the project indefinitely delayed; Lithuanian environmentalists protested the drilling for oil off the coast, also succeeding. In Estonia, students mounted a campaign to halt large-scale phosphore and oil shale mining, claiming the environment was being damaged and that the project would create heightened immigration of workers from outside of the republic; although "the authorities appeared to yield,... work on the scheme had in fact continued" (Nahaylo and Swoboda 1990:267-268).

In March of 1983, the Tatars demonstrated against construction of a nuclear power station on the Kama River. In March of 1986, Armenian intellectuals wrote Gorbachev "protesting against the alarming level of industrial pollution in their republic and revealing...widespread concern

about plans to construct a second nuclear reactor at Metsamor..." In Ukraine, a center for nuclear power generation, the literary weekly *Literaturna Ukraina* "published an article criticizing the poor safety standards and numerous problems at the giant plant near Kiev," and on April 26, 1986, less than three weeks later, that plant, at Chernobyl', exploded in the worst nuclear accident in history. A week before the disaster, the president of the Ukrainian Academy of Sciences, Boris Paton, had proposed that scientists restudy the "safety procedures at nuclear power plants and review how sites [were determined]". Chernobyl' radiation was "blown in a north-west direction...from northern Ukraine, through Belorussia and across the Baltic into Scandinavia" (Nahaylo and Swoboda 1990:243).

Soviet citizens reacted to the government delayed news of the disaster with the same shock as the rest of the world:

Inevitably, the Chernobyl' nuclear disaster raised awareness and concern about environmental issues among the Soviet population. In the non-Russian republics it also appears to have sharpened sensitivities about the extent of Moscow's control over them and the power of the central ministries. This was particularly evident in the Ukraine where the accident traumatized the population and goaded the nation's writers, and eventually also scientists, into action. (Nahaylo and Swoboda 1990:244)

By summer, still chafing from Chernobyl', where scientists had, in March, discouraged the central economic development planners (GOSPLAN) from building a fifth and sixth reactor at the site, the Ukrainian writers began organizing protests against "building 'another Chernobyl' at Chigirin, in the middle of an area with special historical significance for Ukrainians" (Nahaylo and Swoboda 1990:268).

In Armenia, concern about "ecology, nature conservation and the environment" caused, in March 1987, measures to counter pollution and generally clean up the mess created by Moscow-planned development projects. However, air pollution remains a constant problem. In Georgia, opposition to a scheme to build a new railroad line through the Caucasus intensified; the project threatened to damage the environment and some historical monuments as well as "bring a flood of workers from outside the republic" (Nahaylo and Swoboda 1990:268).

In Central Asia, use of toxic agricultural chemicals has raised infant mortality rates to two to three times the

national average, and protests resulted in the ban of a particularly toxic defoliant—Butifos, used since the mid-1960s (Nahaylo and Swoboda 1990:268). There also, the problem of water scarcity is acute and a looming ecological disaster seems imminent—"the desiccation of the Aral Sea and the resulting alteration of the region's climate and reduction of the growing season" (Nahaylo and Swoboda 1990:268). The seriousness of the Aral Sea disaster grows; the sea is rapidly dying, having lost "a third of its water since the 1960s, and the dispersion from its dry sea bed is poisoning surrounding crops and sources of drinking water" (Olcott 1990:268). Sibirsk, a scheme to divert Siberian rivers to help solve Central Asia's water shortage, after intense debate was shelved by GOSPLAN, the USSR national planning secretariat; many Central Asians saw the project's termination as a result of Moscow's unconcern for their water shortage (Nahaylo and Swoboda 1990:216, 235, 241-242). Experts in Uzbekistan argue that the water shortage is severe and that current sources will meet needs only through the early 1990s; "many Central Asians have come to question Moscow's right to determine the economic priorities for their region" (Olcott 1990:268). Ecological concern was supported not just by non-Russians; in Kazakhstan, a bi-national group of Kazakhs and Russians protested nuclear testing and other ecological issues (Olcott 1990:275).

From an ecological perspective, it is logical to analogize cultures and languages as an important component of the physical and cultural environment (Marshall and Gonzalez 1990b). "The recent emergence of the concept of 'ecology of culture'...includes elements such as awareness of one's historical past and purity of language" (Solchanyk 1990:186). When these concepts of preservation of what is threatened, whether natural or cultural, became articulated, they aroused opposition against "blind economic planning," whether industrial or linguistic, particularly when done faraway in Moscow; such concerns became major dynamics of the centrifugal force.

These selected dynamics of the centripetal force were being countered and often overwhelmed by those of the centrifugal force. The arising of nationality popular fronts through mass political participation had caused the CPSU to become inadequate, resulting in the cleavage of political action in the USSR along ethnic lines, thus prioritizing ethnic identity and its concomitant language. The imperial legacy that allowed the Russian nationalists to rule as the dominant majority had been challenged by renewed nationality identities, and the rising population of the nationalities, particularly the Muslims, could have made the Russians only

a minority by as early as 1994 (Anderson and Silver 1989:624). Realizing this probability, the Russians reacted politically, some forming groups that exacerbated ethnic goodwill (see Szporluk 1989 for a catalogue of such groups and their beliefs). Reaction by non-Russians had been a major part of the surge of ethnic identification and mobilization.

Soviet language policy and its goals of Russification and assimilation had created a fair rate of bilingualism among non-Russian nationalities (48.1% in 1989 according to Anderson and Silver 1990:96), but the cost of becoming bilingual was not shared. Russians had a bilingual rate of only 3.5% for all languages (in the 1979 census: Kozlov 1988:168:Table 37; for the 1989 census, see Anderson and Silver 1989:647:Table 19). When one considers that "one Soviet citizen out of five—some 55 million people—lives outside his or her respective nationality's home territory—a large percentage who are Slavs" (Goble 1985:81) and most of whom are Russians, then the fact that the non-Russians (and not the Russians) were supporting bilingualism becomes evident.

When added to former Russian immigration into the non-Russian SSRs (see Table 2; see also Nahaylo and Swoboda 1990:254-350), the perceived burden of Russification for the minorities became critical. A growing sense of unfairness, added to the perceived threat of Russian to the nationality language, resulted in all of the non-Russian SSRs creating legislation making their titular languages official and their use mandatory for all citizens, actions contested by Moscow and most Russians resident in nationality SSRs (Nahaylo and Swoboda 1990:254-350). There had also been increasing political pressure for more non-Russian language education (Nahaylo and Swoboda 1990:254-350) and for curtailing Russian as the sole language of higher instruction, thus reversing the centripetal forces in education.

These activities and legislation countered the Soviet language policy and stabilized the republic nationality languages, resulting in a potential for decrease in the rates of bilingualism (see Anderson and Silver 1989:646:Fig. 18), and Anderson and Silver 1990:122-123). The parts of the centripetal force contributed by Soviet language policy and Russification became counterproductive, resulting in increased nationality language preservation efforts.

The creation of a politics of mass participation along with Gorbachev's policies placed the nationality cadres in a position where they dared not contribute forcefully as part

of the centripetal force. The effect of mass politicization and the loss of the legitimating principle found in Marxism-Leninism was either to neutralize the nationality cadres as contributors to centripetal force or to tip them over to become a contribution to the centrifugal force.

The official program for Soviet atheism was unsuccessful in preventing a revival of religious affiliation during the 1960s and 1970s, forcing the government to reach some type of rapprochement with organized religion. The rise of Russian nationalism aided the favoritism shown the Imperial (Russian Orthodox) Church, while the reaction in those not Russian Orthodox was one of having the religious institutions aid in the renewal of national identity and mobilization. The cleavage between Christian and Muslim and Jew further increased religious antagonisms, while the persecution of the Jews led to their seeking emigration to Israel or agitating for increased religious freedom along with others who had been denied their right to religious practice (Gitelman 1989, Bociurkiw 1990:158). The part of the centripetal force contributed by the state-sanctioned atheism, or the Imperial Church after it was co-opted, was countered by the alliances of other religious institutions with the newly forming national popular fronts, alliances aiding the centrifugal force as a new dynamic, since these institutions were so closely tied to ethnic language and identity.

The potential contribution to the centripetal force of the Soviet military was vitiated by practices of discrimination against non-Russians, hazing, internationality feuds, and the general problems of military discipline gone amuck. Segregation of Muslim and "dissident" nationalities, when added to the heavy-handed military indoctrination and language instruction, impaired the potential contribution of the military to the centripetal force. The protracted war in Afghanistan created animosity for the largest manpower pool available now or in coming decades to the Soviet military, the Muslims. Military traditions arose which exacerbated ethnic rivalries, making military experience for non-Russians one radicalizing ethnic identity, contributing to the centrifugal force.

Centralized economic planning through GOSPLAN, part of the centripetal force, sharply increased environmental concerns—aided by the world's worst nuclear accident at Chernobyl' and other ecological disasters and threats, and abetted by what those on the periphery thought was Moscow's unconcern—resulted in an increase of nationality mobilization for local economic sovereignty and environmental protection. When blended with concerns about Russian immigra-

tion, which produced competition for jobs, these concerns became extended into a concept of 'ecology of culture', increasing the desire for protection of nationality languages and other symbols of nationality identity. These increased concerns—natural, instrumental, cultural and linguistic—became part of the dynamics contributing to the centrifugal force.

The advent of *glasnost* and *perestroika* had the effect of decreasing centripetal force and increasing centrifugal force, with the concomitant effects of undermining Russian-centered Soviet language policy as well as the prioritizing of the use of languages of the titular non-Russian SSRs.

4 Sociolinguistic dynamics in USSR nationality mobilization

The fourteen titular languages of the non-Russian SSRs (see Table 2) were from various language families and had their own histories of development, standardization and codification (see Comrie 1981 for a cataloging of these features). Estonian is Uralic; Lithuanian and Latvian are Indo-European Baltic; Ukrainian, Belorussian and Russian belong to East Slavic Indo-European; Moldavian is a dialect of Romanian, despite efforts by the Soviets to argue it is a separate language (see Bruchis 1982 for an extended discussion of this attempt); Armenian is Indo-European; Georgian is Caucasian (often a geographical rather than a relational designation); Azerbaizhani is Turkic as are Kazakh, Uzbek, Turkmani and Kirghiz; Tadzhik is of the Iranian branch of Indo-Iranian Indo-European (Comrie 1981). Each nationality was the largest group in its SSR, only Kazakh and Kirghiz not having an absolute majority (USSR Yearbook 1990:90-149).

The sociolinguistic dynamics of Soviet dissolution become strikingly simple when examined carefully. The effect of Soviet language policy was to increase bilingualism among those persons who needed it for instrumental reasons, such as gaining employment, participating in the benefits of modernization, and, possibly, facilitating political action in the CPSU. The bilingualism in the SSRs yielded some switching to Russian, but maintenance of the titular languages was stable and the languages were not threatened, for as the titular nationalities became bilingual, they preserved specific domains for the nationality language with stable diglossia (for use of this term, see Fishman 1989:389-402).

The effect of the destabilization of the political system along ethnic lines (Beissinger and Hajda 1990:316) shifted politics out of the CPSU infrastructure into a politics of mass participation, the popular fronts being orga-

tics of mass participation, the popular fronts being organized at SSR level around nationality identity. The linguistic complaints of the nationalities became sentimental symbols, inciting new dynamics for ethnic unity and increasing complaints resulting from the superstate status of the Russian majority, the domination, to use Stalin's terms, of the "big brother" over the "little brothers" (see Armstrong 1968 and 1990).

Pool provided this prediction of the process in 1978:

The...force against Russianization is the attitudes of the non-Russian elites. This force is likely to grow, rather than shrink, as industrial development and urbanization proceed. The perceived importance of its language among the elite of a subordinate group tends to be low when initial contact with a more advantaged language group is made. Once those who wish to learn the latter group's language have done so and some permanent assimilation to that language has begun, it begins to be perceived as a threat to the survival of the native language. It is difficult to predict how far a movement of native-language consciousness would go in a particular Soviet nationality, but the movement probably would become strong as soon as virtually all of the group's population had a moderate command of Russian and a substantial trend toward the selection of Russian-medium education by parents had set in. (Pool 1978:241).

What Pool predicted in 1978 happened, but there were other important considerations. *Glasnost'* allowed complaints to be heard, the Russians noting that they had sacrificed for the periphery without receiving their fair share of the benefits of modernization. With the withering of the legitimacy of the Marxist-Leninist 'mythomateur' (a myth that motivates loyalty of the citizen to the state or monarch: Armstrong 1982:129-131) and the government's admission of the failure of Communism, Russians and non-Russians found themselves making similar demands without having anything left to provide legitimacy except the recidivist nationality identities. The clash of nationality identities heightened the symbolic forms which that identity took, the major one being language.

The concerns of the non-Russian nationalities—intensive Russification, continuing immigration by Russians, a language policy requiring the expense of bilingualism to be paid by non-Russians and not by Russians, preferential treatment for Russians when jobs were in competition, the deterioration of the environment, lack of equal treatment in the military and in educational opportunities—all these

concerns and more (including many regionally or locally specific) created a situation where language could be used symbolically to represent nationality grievances. Although the 15 SSR titular languages were not really threatened, other smaller languages were, and titular language use symbolically provided a means whereby the nationality could represent its feeling of solidarity and perceived inequality.

Pool also astutely predicted this process in 1978: "The unique role of Russian as the language of intergroup contact and individual mobility may some day be seen as an unfair and un-Leninist privilege granted to one nationality. The 'voluntary' acceptance of assigning that role to Russian may deteriorate" (Pool 1978:241). Pool was correct, and that deterioration took place.

A rush of legislation made the nationality languages official in the SSRs and began to counter Russian dominance in education. When asked for, many of these demands (although not all) were granted, for "linguistic and cultural demands are relatively easy to satisfy, since they do not entail the diversion of large amounts of resources" (Beissinger and Hajda 1990:319). Satisfying these symbolic demands were cost effective and inexpensive, but not without a greater hidden cost. Russians living in the nationality SSRs found themselves in situations no longer stratified in their favor, "fanning nationalism among Russians residing in the non-Russian republics. The rise of the so-called internationalist movements...and the disruptive strikes...by Russian workers...were responses...to the threat that their favored status within the system was being undermined" (Spechler 1990:292). In response to demands made to satisfy non-Russian symbolic needs, the Russians found themselves facing instrumental demands of the SSR language laws and the new restrictions proposed for SSR citizenship. The cost of bilingualism was now to be paid by them; "little brother" had grown up and was considering himself "big brother's" equal, and "big brother" was being called accountable for his years of linguistic bullying.

The disruptions of the nationalities' economies by Russian agitation converted the symbolic linguistic demands of the SSR nationalities into instrumental demands, and a cycle was started which could only be broken by secession of the SSR. All 15 SSRs passed laws creating their individual sovereignty, and many began working on separate trade delegations and differently marked money.

The dissolution of the USSR then took on faster and faster speed.

The situation where one ethnic group views the society as stratified while the other views all members of the society as equal and the society therefore not stratified (or no longer in need of being so), is a dynamic which leads to ethnic conflict. (See Horowitz 1985 for a detailed account of how this dynamic functions in ethnic conflict). As long as the Soviet Union was preserved, the Russians faced a choice of two linguistic policies: 1) to continue to encourage bilingualism for all except Russians, the present policy, or 2) to create a universal bilingualism among the Russian population as well as among the non-Russians. Only the latter alternative offered a chance to defuse the linguistic politics of the situation, but whether such a policy would ever have been attempted is highly doubtful. Again, Pool supplied the reasons:

One can safely assume that the utility of a knowledge of Russian under all foreseeable conditions within a continued Soviet political order will remain much higher than the utility of a knowledge of any other Soviet language. Thus the serious question is whether any policy could succeed in making all Russians, or even all Russians outside their own republic, bilingual. There are hardly any cases of widespread reciprocal bilingualism in the world. Spanish-Guarani bilingualism in Paraguay and English-Afrikaans bilingualism among the white population of South Africa are both high, but neither is the result of a deliberate government policy imposed in a situation where such bilingualism was previously absent... No major language in the USSR besides Russian has international status, and...many are linguistically very distant from Russian...To the extent that prevailing patterns of natality, migration, and manpower demands drove Russians from other republics back to the RSFSR, this migration would endanger [a universal bilingualism] plan by depriving both Russians and non-Russians of the most crucial precondition for effective language learning: an environment in which the other language is common and useful. (Pool 1978:242)

Even if a policy of universal bilingualism had been attempted and had been successful, there still remained the other concerns which provided a centrifugal force and which mitigated against the centripetal force, and therefore, language still provided a symbol for ethnic identity and conflict. Any plan of universal bilingualism would have required too great an investment of resources, given the Soviet Union's desperate economic needs.

5 Conclusion

Did the USSR's policy of officially sanctioned multilingualism serve as a cause of increased ethnic and nationality tensions? The answer is a qualified no. Neither multilingualism nor official policy caused ethnic tensions; rather, it was the insistence by members of the Russian nationality on viewing themselves as superior to the non-Russians, an insistence bequeathed as a legacy of the Tsarist Empire (Szporluk 1990:2). Szporluk explains:

Historical evidence suggests that the unity of multiethnic polities depends largely on the willingness of the dominant element not to think of itself as an ethnic category. It is not enough for the state to seek to assimilate its diverse groups; the dominant element in the state has to dissolve itself within and identify itself with a broader territorial, political, and/or ideological concept as well. And so we have Americans, not 'WASPS'; Ottomans, not Turks; British, not English; Spaniards, not Castilians. The likelihood of the rise of a new, more authentically common Soviet political identity, therefore, will largely depend upon on the willingness of the Russians to submerge or dissolve themselves in a broader entity encompassing all the peoples of the state (Szporluk 1990:17).

It was highly doubtful that the Russians, given their own intensified nationality identity, would have been willing to "submerge or dissolve themselves in a broader entity encompassing all the peoples of the" USSR. The dynamics of language politics continued to add to the centrifugal force, a force that constantly pressed the nationalities towards eventual secession, a force requiring more and more costly suppression by the center of the periphery to contain it, a force sending the USSR spiraling down to dissolution, leaving the field free for intensified ethnic conflict.

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TONE IN KOMO¹

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1 Introduction

1.1 Typological description of Komo

Komo is a sub-Bantu language spoken by over 200,000 people in the regions of Maniema and Haut-Zaïre in Zaïre. It is spoken in the large area extending from Kisangani in the west to the Lindi, Osokari, and Mandayo Rivers near Walikale in the east.

Komo speakers are found in the Ubundu, Opienge, and Bafwasende Zones (Tshopo Subregion of Haut-Zaïre), the Lubutu and Punia Zones of the Maniema Region, and into the Walikale Zone of the Nord-Kivu Region.

Komo belongs to the following language groupings, in order of decreasing generality: Niger-Kordofanian, Niger-Congo, Benue-Congo, Bantoid, Bantu, Bira-Huku. Its Guthrie number is Kumu D23 in the Lega Kalanga group. Kutsch Lojenga and Raymond (1985) list it as one of four related languages of which the other three are Bera (Bira D32), Bila (no Guthrie number), and Bele (Peri D31) (Guthrie 1948). Recently, an additional related language has come to light: Amba (Kutsch Lojenga, personal communication).

Komo has been variously called "sub-," "semi-," and "border" Bantu because of its typological idiosyncrasy of lacking a number of productive Bantu-like noun-class prefixes. Bantu languages are characterized by a system of concord in noun phrases and between nouns and verbs; Komo has no such thing. Komo is nevertheless recognizable as a

Bantu language because of its large number of Bantu cognates, its lexicalized but recognizable noun class prefixes (Thomas, in preparation), and its agglutinative verbal morphology.

1.2 Purpose of this study

My purpose is to continue to comprehensively present and analyze Komo sound patterns as was begun in Thomas (to appear). Whereas that paper is principally concerned with advanced tongue root (ATR) and vowel height harmony, here the concentration is on tonal processes.

1.3 Research questions

I attempt to answer the following questions:

- i) What are the minimal lexical specifications necessary for Komo tones?
- ii) What sort of tonal alternations exist and how may they most simply be accounted for with rules?
- iii) How do tonal phenomena interact with Komo morphology?
- iv) At what levels of derivation do various tone rules apply?

1.4 Definition of terms

- anchor.* An anchor is a skeletal unit, either C, V, or N, to which an autosegment may link via the relevant arboreal structure (see the discussion on the framework, section 1.8).
- associative.* An associative *á* links two nouns to create a genitive phrase. So *X á Y* means literally 'X of Y', or sometimes 'Y's X'. If X is a gerund, then Y is objective if the gerund is bivalent, or subjective if the gerund is univalent. I call X the head and Y the adjunct of the construction.
- autosegment.* An autosegment is a feature that is not linked to any skeletal element. It may link to a skeletal unit by an association convention.
- concatenate.* If a morpheme is added to the left or right of a form, then that morpheme is said to have been *concatenated* to the pre-existing form.
- conflate.* If an autosegment is superimposed on a form, then it is said to have been *conflated* onto that form.
- lexical.* This refers to that part of the derivation of a word in which affixes are being concatenated (added to either side of) to a root and phonological rules are being applied in the process of concatenation.

- post-lexical.* This refers to processes, either phonetic or syntactico-phonological, that take place after the formation of a word.
- root.* A root is a morpheme that underlies a derivational or inflectional paradigm. It is the most basic input to the derivation of a word.
- skeleton.* This refers to the feature-bearing elements or nodes of a morpheme. It consists of a string of C's, V's, and N's, where C denotes a consonant, N a nasal, and V a vowel.
- stem.* A stem is a root to which zero or more derivational affixes have been added. In other words it has undergone the derivational part of its lexico-phonological derivation.
- syntactico-phonological phrase, or simply phonological phrase.* This refers to the result of combining one or more words into a single syntactical unit, often delimited by pauses, and incorporating such syntactical units as *noun phrase* and *interrogative*.
- universal association convention.* The universal association convention (UAC) governs the linking of free autosegments onto free anchors. It states that free autosegments are mapped onto free anchors (1) in a one-to-one relation, and (2) from left to right in the default case. If mapping is from right to left, then the UAC is said to be marked for the particular autosegment concerned (cf. Pulleyblank 1986).
- word.* I understand *word* to mean the output of the lexical processes of derivation and inflection. Together with other words, it forms the input to syntactico-phonological derivation.

Other terms are defined as they come up.

1.5 Data gathering methods

First, I have had the privilege of learning to speak and listen to the language during three years of living with the Komo people. I am at the point of fluency where I can speak Komo in public-speaking contexts and can test elicited paradigms when listening to everyday speech.

I have elicited paradigms, texts, and a dictionary data base of over 2500 entries. Three individuals were the principal sources of the elicitation; a number of others made smaller contributions.

I have also done some psychological experimentation using nonce, or coined, words, transliterated foreign words, and a language game utilizing syllable reversal.

Many of the paradigms have been checked by Constance Kutsch Lojenga, a consultant in phonology and phonetics. Some of the data have also been instrumentally checked. I, of course, take full responsibility for any errors in the data and analysis.

1.6 Organization of this paper

I assume that Komo has three strata of derivation (cf. Mohanan 1986). These include the two lexical strata of derivation and inflection and a post-lexical stratum of phonological phrase formation. It is my intention to use these strata as an organizational basis, showing phenomena that occur during derivation first and phenomena that occur during phonological phrase formation last.

1.7 Framework

I use a framework that incorporates the following: lexical phonology (Mohan 1986 and Pulleyblank 1986), a hierarchical theory of distinctive feature structure (Clements 1985 as incorporated into Archangeli and Pulleyblank 1986, Snider 1988), and a theory that constrains the set of possible phonological rules (Archangeli and Pulleyblank 1986).²

In the course of writing a rule, I generally state it using two different frameworks. First, I state it using a parametric system devised in Archangeli and Pulleyblank (1986). However, for the benefit of the reader who is not familiar with Archangeli and Pulleyblank (1986), I restate each rule (and subsequent related processes) transformationally, in roughly the same way as Pulleyblank (1986).

The parametric system of rule writing used here incorporates (1) a hierarchical theory of distinctive feature structure as proposed in Clements (1985), and (2) a theory of phonological rules that is more constrained than in a transformational rule-writing framework. This theory of

²Having spent the last three years in Zaire, interaction with colleagues having a similar linguistic background to my own has been very limited. My understanding of the framework therefore results purely from going back and forth between a few written texts (the framework) and the data at hand. I therefore apologize in advance for any inadequacies in my understanding of the framework.

phonological rules constrains rules to either insert or delete hierarchical structure or feature content. For example, the parametric system does not permit alpha switch rules or rules of metathesis, both of which are regarded as overly powerful potential rules of the transformational rule system.

My overriding purpose, however, is to bring to light Komo tonal data. I hope that I have arranged the data in a sufficiently logical and copious fashion as to make it accessible to those having a variety of linguistic persuasions.

2 Komo lexical tone

2.1 Nouns

In most Komo nouns, each syllable has a discrete, level tone. The following table lists the possible tones on two syllable nouns, each line representing a possible combination of tones, as indicated in the leftmost column. In the representations that follow, an acute accent indicates a high tone; the lack of an accent indicates a low tone.

(1) Tone in two syllable nouns

HH:	ḡúḡú	'chicken louse'	cíḡó	'jigger'
HL:	éso	'voice'	gbútu	'staff'
LH:	abé	'father'	cengú	'venom'
LL:	ḡongo	'word'	ise	'elephant trap'

Thus, all possible combinations, or melodies, of the two tones, high and low, are attested in bisyllabic nouns. In monosyllabic nouns, however, an additional tone appears: a rising contour.

(2) Tone in monosyllabic nouns

H:	jó	'woman's panier'	nké	'woman'
R:	mḡ	'head'	mě	'tree'
L:	na	'and'	ngi	'fly'

The problem then concerns accounting for the rising tone. Here, I analyze it as being a combination of an L tone and an H tone. The universal association convention (UAC, defined in section 1.4) can only link the L; a rule is needed to link the H.

(3) H retrolinking³

- I. c. structure
d. opposite direction
- II. [+upper]
- III. trigger: free
target: linked

Graphically, where T is any tone:⁴



What (3) says is that a leftover H autosegment is linked leftwards.⁵ If the vowel to the left is already

³This is *retrolinking* in the sense that, if T₁ precedes T₂ on the tonal level, and if skeletal position X₁ is in correspondence upon applying the UAC with T₁, then X₁ precedes T₂ and T₂ is said to be linking to the left, and in this case in the opposite direction of the UAC for tone, which is left to right. H retrolinking comes up again in sections 2.2.4 and 4.2.3. In the latter case, an autosegmental H stemming from the third person plural object morpheme must link leftwards onto a prefix rather than rightwards onto a verb stem in the same sense as the UAC for tone.

I am adopting the rule-writing format of Archangeli and Pulleyblank (1986). In this format, a rule consists of three parts. Part I contains a list of parametric settings, part II the argument of the rule, and part III trigger or target conditions.

There are four parameters in part I, each parameter having both a marked and a default setting. Default settings are not overtly stated in a rule. Here is a list of these parameters, where the first parameter, in parentheses, is the default setting or core specification, and the second setting is the marked or stipulated specification.

- I. a. (insert)_{def}/delete
- b. (maximal)_{def}/minimal
- c. (content)_{def}/structure
- d. (same direction)_{def}/opposite
 direction/bidirectional

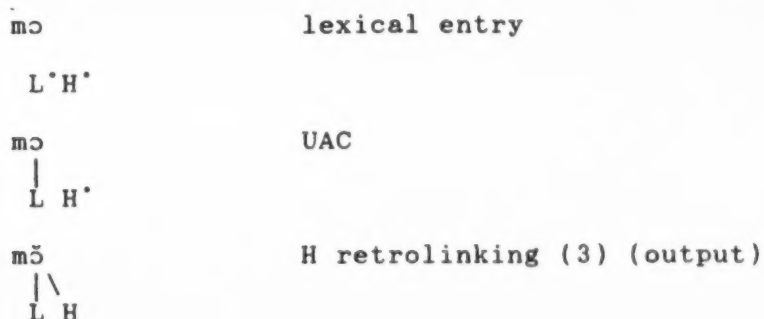
⁴A degree sign [°] after a tone indicates that it is floating. The lack of the same indicates that it is linked to the vowel above it.

⁵See footnote 2, first paragraph.

linked to a high tone, then the obligatory contour principle (OCP) prevents the H from associating.⁶

A derivation in the case of a monosyllabic noun is straightforward.

(4) Derivation of mɔ̌ 'head'



This rule comes into play again in the discussion of the third person plural object prefix.

2.2 Verb stems

2.2.1 Stem classes I and II. TAM tone markers.

The situation is more complex with verb stems.

In the gerund and perfective, a two-syllable stem can usually have only two melodies, HH and LH. That is, the second syllable always carries a high tone.

⁶The Obligatory Contour Principle (OCP) prohibits representations in which adjacent autosegments are identical.



where F is a feature having a determined value and X and Y are adjacent F-bearing units. In the diagram, either the second F is constrained by the OCP from linking in the first place, or, if the diagram is the result of bracket erasure, minimal changes take place to resolve the violation. Such a resolution would be the following diagram.



Archangeli and Pulleyblank (1986:131ff) discuss the OCP as I understand it.

(5) Verb tone melodies: gerund⁷

HH: bédá	'take'	ḡétá	'hit'
LH: ǰóngá	'speak'	kpangá	'begin'

(6) Verb-stem tone melodies: perfective

HH: bédí	'take'	ḡetí	'hit'
LH: ǰongí	'speak'	kpangí	'begin'

In the imperfective, the same verbs as in (5) and (6) always have a low tone on the second syllable.

(7) Verb-stem tone melodies: imperfective

HL: bédá	'take'	ḡéta	'hit'
LL: ǰonga	'speak'	kpanga	'begin'

In (5) - (7), the tone on the first syllable of the stem is invariable while the tone on the second syllable varies with the tense-aspect-mood (TAM) configuration of the stem. Only the first tone, therefore, lexically characterizes the verb stem.

In other words, tone is a lexical property of the verb stem. Within the autosegmental framework, it is not a property of any segment within the verb, since the UAC assigns the stem-class tone to the leftmost syllable automatically in the unmarked case.⁸ I therefore propose two verb-stem tone classes, one for low-tone stems and one for high-tone stems. I call them stem classes I and II, respectively.

Similarly, the TAM of a stem can be lexically characterized in part by its tone. I call these TAM tone markers. I have so far shown that the TAM tone marker for the gerund and perfective stems is a high tone, and that the

⁷With the exception of the gerund forms, verb stems when cited in isolation in this paper cannot exist as words. However, perfective and imperfective stems rest invariable when concatenated with prefixes.

⁸The difference between noun stems and verb stems in this regard is that, exceptionally, segments in noun stems may be lexically linked. Examples are *amá-songodómíó* 'scorpion' and *gbuṛgbukítí* 'circumcision dance', where there is no way of predicting the penultimate H association. However, the usual case for noun stems is that they have lexical melodies that link by the UAC and rules such as H retrolinking (3).

TAM tone marker for the imperfective is a low tone. I summarize these informally in (8) and give examples in (9).

(8) TAM tone markers

[perfective]	--> H
[gerund]	--> H
[imperfective]	--> L

(9) TAM tone markers with resultant melodies for *bédá* (class I) and *ǰóngá* (class II)

<u>Verb-stem/TAM</u> <u>marker</u>	<u>perfective (H)</u>	<u>imperfective (L)</u>
class I (L):	ǰóngí (LH)	ǰonga (LL)
class II (H):	bédí (HH)	béda (HL)

2.2.2 Stem class Ia and the feature [branching]

There is a sub-class of verb stems which, when conflated with the perfective TAM, surface with a rising tone on the first syllable.

(10) Stem class Ia (exhaustive)⁹

<u>Imperfective</u>	<u>Perfective</u>	<u>Gloss</u>
<i>betua</i>	<i>bětú</i>	'limp'
<i>ḡota</i>	<i>ḡótí</i>	'pull'
<i>kambea</i>	<i>kāmbí</i>	'get up on'
<i>ketia</i>	<i>kětí</i>	'transform'
<i>ḡasa</i>	<i>ḡásí</i>	'urinate'
<i>ḡatia</i>	<i>ḡātí</i>	'shut'
<i>ḡeka</i>	<i>ḡěkí</i>	'construct'
<i>ḡoda</i>	<i>ḡōdí</i>	'pass by'
<i>ḡongota</i>	<i>ḡōngótí</i>	'gouge out eyes'
<i>ḡusia</i>	<i>ḡūsí</i>	'suspect'
<i>sǰngea</i>	<i>sǰngí</i>	'thread (tr.)'
<i>tandoa</i>	<i>tāndú</i>	'leap from branch to branch'
<i>tongoa</i>	<i>tǰngú</i>	'castrate'
<i>tǰmia</i>	<i>tǰmí</i>	'recount'

In each case in (10), the first syllable is of one mora. There is no difference in the length of the first syllable in comparing the same stem in each TAM configuration. Nor is there any difference in length between

⁹Alternations in the vowel endings between the perfective and imperfective forms of the stem are discussed in Thomas (to appear).

the first syllables of the minimal pairs *bětú* 'limp:pf' and *betú* 'invert:pf'.

The difference between verb-stem class I and what I am calling here verb-stem class Ia is that two tones can link to the first vowel, creating a rising tone. Archangeli and Pulleyblank (1986) account for such vowels by using the feature [branching]. Informally, [branching] means that two elements on the same tier are linked or will be linked in derivation to the same node, in this case a tonal node. A branching node linked to distinct values of [high] would surface as a diphthong in some language. A branching node linked to two distinct tones (or values of [upper]) here surfaces as a contour tone.

I illustrate with *Φāsá* 'urinate'. Figure (11) is a partial lexical entry for [urinate].

(11) Partial lexical entry for *Φāsá* 'urinate'

$\left[\begin{array}{l} \Phi \text{ a s a} \\ \text{C V C V} \\ \text{L} \\ \text{branching} \end{array} \right]$	segmental melody
	skeleton
	tone melody
	other features relevant to tone

The first and second lines in the brackets indicate that the lexeme consists of a CVCV skeleton, of which the second and fourth elements are vowels. The third line describes the tone class of the stem. The fourth line indicates the branching nature of the lexeme with regard to tone.

In the case of concatenation of 'urinate' with a perfective TAM tone, a derivation would look like the following.

(12) Derivation of *Φasi* 'urinate:pf'¹⁰

Φasi lexical input

$\hat{\text{L}}^{\circ}$

Φasi conflation of perfective TAM tone

$\hat{\text{L}}^{\circ}\text{H}^{\circ}$

¹⁰A circumflex accent [$\hat{\text{~}}$] below a vowel indicates that it is branching.

$\Phi\check{a}si$ UAC
 $\begin{array}{c} / \quad \backslash \\ L \quad H \end{array}$

$\Phi\check{a}sí$ Tone spreading (to be discussed below)
 $\begin{array}{c} / \quad \backslash | \\ L \quad H \end{array}$ (=output)

Now it is a property of Komo roots that, if there is a contour tone present in a root, that contour is usually on the leftmost syllable. Thus, I assume that [branching] associates in the unmarked case to the leftmost vowel in a lexeme, as was assumed in the preceding derivation.

There are, however, three bisyllabic nouns in the data where both syllables have contour tones. There are no verb stems having two contour tones. Here are examples of nouns having one or two syllables with contour tones:

(13) Nouns with contour tones

<u>On one syllable</u>	<u>On two syllables (exhaustive)</u>
<i>bũku</i> 'wallet'	<i>kěkě</i> 'now'
<i>bũkutu</i> 'earwax'	$\Phi\check{5}\Phi\check{5}$ 'plant (ataenidia conferta)'
<i>ětc</i> 'mona monkey'	<i>sőső</i> 'crabgrass'

The nouns in the right-hand column consist of reduplicated syllables. If reduplication is analyzed to occur after H retrolinking, then there are no exceptions to having the feature [branching] assigned by UAC to the leftmost syllable.

One other exception is *beběta* 'unripe rice', which may again be the result of a reduplication process, where *běta* is the root and leftward reduplication of the first syllable again occurs after H retrolinking, but where the tonal node may not spread leftward (although it evidently can spread rightward in (13)). So [branching] is analyzable in Komo as a lexical feature of a noun or verb stem that links by UAC to the leftmost vowel.

2.2.3 Stem class III

Two stems do not follow the pattern of table (9) in a way that can be accounted for with the feature [branching]. These are *jǎ* 'return (intr)' and *gǎá* 'fall'. Their perfective and imperfective stems are as follows.

(14) Stem class III¹¹

<u>Verb stem/TAM tone</u>	<u>perfective (H)</u>	<u>imperfective (L)</u>
<i>já</i>	<i>jí</i>	<i>ja</i>
<i>gúá</i>	<i>gú</i>	<i>gua</i>

In (14) the tone that surfaces on the verb stem seems to depend wholly upon the tone of the TAM marker. Apparently, these two roots are lexically toneless. A derivation would consist of simply linking a TAM tone to a toneless stem, which thereby takes on the tone of its TAM configuration.

Alternatively, one could say that the two stems in question are simply irregular. The problem with the alternative is that the same pattern exists through a number of other TAM configurations: if the TAM tone is H, then the two stems line up with stem class II; if the TAM tone is L, then the two stems line up with stem class I. Truly irregular stems would be expected to line up with stem class I or stem class II with regard to a TAM configuration in an arbitrary manner. The following table summarizes things:

15 TAM configurations

<u>TAM configuration</u>	<u>TAM tone</u>	<u>stem class III lines up with:</u>
imperfective	L	class I
perfective	H	class II
subjunctive	H	class II
gerund	H	class II
future	L	class I
future anterior	L	class I
strong subjunctive	H	class II

The following examples illustrate these stem configurations, which are, left to right, the causatives of the stems *jɔngá* 'speak', *bédá* 'take', and *gúá* 'fall'. The Class I or II stem that the class III prefix lines up with in each case is underlined.

¹¹Note that the citation forms in the left-hand column are gerunds which take the perfective (high tone) TAM.

(16) TAM configuration examples

TAM	class I	class II	class III
imperfective	<u>ʒɔŋgisa</u>	<u>bédisa</u>	<u>gusa</u>
perfective	<u>ʒɔŋgísí</u>	<u>bédísí</u>	<u>gúsí</u>
subjunctive	<u>ʒɔŋgísé</u>	<u>bédísé</u>	<u>gúsé</u>
gerund	<u>ʒɔŋgísá</u>	<u>bédísá</u>	<u>gúsá</u>
future	<u>ʒɔŋgisānde</u>	<u>bédisānde</u>	<u>gusānde</u>
future anterior	<u>ʒɔŋgisaéká</u>	<u>bédisaéká</u>	<u>gusaéká</u>
strong subjunctive	<u>ʒɔŋgisémbé</u>	<u>bédisémbé</u>	<u>gúsémbé</u>

2.2.4 Monosyllabic verbs

One case of a monosyllabic verb, *já*, was shown in the preceding section. Since it is lexically toneless, only one tone could be assigned to it: that of the TAM marker. Thus, there is no problem with its derivation.

A problem comes when the lexical tone of a verb stem is distinct from that of the TAM marker. I first discuss verbs with single-syllable imperfective stems, then verbs with single-syllable perfective stems. (I note that the set of verbs with single-syllable imperfective stems is a proper subset of the set of verbs having single-syllable perfective stems but one- or two-syllable imperfective stems. This is a consequence of the lexical shape of the non-tonal part of the perfective and imperfective TAM markers (Thomas, to appear).

An exhaustive list of single-syllable imperfective stems consists of class I *gá* 'go'; class II *bá* 'be', *dá* 'lie down', *má* 'stand', *sá* 'criticize', *tá* 'hunt with bow and arrow', and *já* 'refuse, fly off'; and class III *já* 'return'. The imperfective of class III *já* is *ja*, as was shown in the preceding section. The imperfective of class I *gá* is *ga*, as would be expected for a low tone stem with a low tone TAM marker. With class II, the citation forms are also the imperfective stems. For example, the imperfective of *dá* is *dá*: the low tone of the imperfective TAM never surfaces. Apparently, there is no general provision in Komo for linking leftover low tones after applying the UAC.

The situation with single-syllable perfective stems is different. The following table shows the state of affairs.

(17) Single-syllable perfective stems

<u>class</u>	<u>gerund</u>	<u>perfective</u>	<u>imperfective</u>	<u>gloss</u>
I.	<i>gǎ</i>	<i>gě</i>	<i>ga</i>	'go'
	<i>boá</i>	<i>bũ</i>	<i>boa</i>	'take'
	<i>siá</i>	<i>sĩ</i>	<i>sia</i>	'brush onto'
II.	<i>dá</i>	<i>dé</i>	<i>dá</i> ¹²	'lie down'
	<i>éá</i>	<i>í</i>	<i>éá</i>	'eat'
III.	<i>gúá</i>	<i>gú</i>	<i>gua</i>	'fall'
	<i>já</i>	<i>jí</i>	<i>ja</i>	'return'

The situation with class III has already been explained in the preceding section. Class II, with its high tone, presents no problem, since both stem-class tone and TAM tone are the same. Class I presents a problem because the number of tones assigned by lexicon and by the TAM tone marker exceed the number of syllables in the verb stem. This is accounted for in a way similar to that of monosyllabic nouns: H retrolinking applies, creating a rising contour tone. The difference between monosyllabic nouns with two lexical tones and monosyllabic verb stems is that the extra tone is created by conflation of a TAM tone marker, and not directly from lexical insertion of tone onto the base form.

2.2.5 Summary

There are thus three tone classes for Komo stems and one subclass. I summarize in the table below.

(18) Komo verb-stem tone classes (two-syllable stems) and their usual surface realizations¹³

<u>class</u>	<u>tone</u>	<u>branching?</u>	<u>pf melody</u>	<u>impf melody</u>
I.	L	no	LH	LL
Ia.	L	yes	RH	LL
II.	H	no	HH	HL
III.	none	no	HH	LL

¹²*dá* contains a high tone only, because only high tones may retrolink. *éá* contains two high tones because of a post-lexical rule of tonal node spreading. These are discussed in more detail below.

¹³For an exception to the column on imperfective melodies, see section 3.3.

3 Tone in the derivational stratum

3.1 Derived stems

Derived stems behave in much the same way as the root from which they are formed. By far the most common and productive derivational suffixes include the causative, (-is/-us/-es), the applicative (-e/-e/-i), the reciprocal (-an), and the habitual (-gV), where V is any vowel.¹⁴

(19) Derived stems

<u>verb stem</u>	<u>pf</u>	<u>impf</u>	<u>gloss</u>
class I (ʃɔŋɡá 'speak')			
ʃɔŋɡéá	ʃɔŋɡéí	ʃɔŋɡea	'accuse' (appl)
ʃɔŋɡésá	ʃɔŋɡésí	ʃɔŋɡesa	'cause to accuse' (appl:cs)
ʃɔŋɡágá	ʃɔŋɡígí	ʃɔŋɡaga	'discuss' (hab)
ʃɔŋɡánéá	ʃɔŋɡánéí	ʃɔŋɡanea	'accuse each other' (recip:appl)
class Ia (tɔ́míá 'narrate')			
tɔ́míá	tɔ́míí	tɔ́míia	'narrate for [someone]' (appl)
tɔ́mísá	tɔ́mísí	tɔ́mísa	'cause to narrate' (cs)
tɔ́míágá	tɔ́mígí	tɔ́míaga	'narrate' (hab)
tɔ́míáná	tɔ́míání	tɔ́míana	'swap stories' (recip)
class II (béǵá 'take')			
béǵéá	béǵéí	béǵea	'work with' (appl)
béǵísá	béǵísí	béǵísa	'cause to work' (cs)
béǵánéá	béǵánéí	béǵanea	'work for' (recip:appl)
béǵánágá	béǵánígí	béǵanaga	'work' (recip:hab)
class III (já 'return')			
jíá	jíí	jia	'relapse' (appl)
jígá	jígí	jiga	'remain' (hab)
jísá	jísí	jisa	'return something' (cs)
jísíá	jísíí	jísia	'return something for' (cs:appl)
jíságá	jísígí	jisaga	'return something' (cs:hab)

¹⁴See Thomas (to appear) for formal statements of the lexical content of these derivational suffixes.

So, neither the verb root by itself nor the verb when concatenated with any derivational suffixes has any effect on the tone of the first syllable in perfective and imperfective TAM configurations. Class III is especially interesting here. Not only is the root toneless, but none of the three derivational suffixes attested as collocating with the root have any effect on the tone of the first syllable in the perfective and imperfective. I conclude that derivational suffixes as well as class III stems are lexically toneless.

Of course, the problem remains about accounting for what happens when the two tones associated with the verb-stem tone class and the TAM tone marker must associate with a stem of three or more syllables. Again, the UAC as stated in its more recent formulations does not deal with cases where there are either excess autosegments or excess syllables after association of autosegments to syllables. Such residue must be dealt with by language-particular rules.

The case where there are excess high tones after UAC, was dealt with by rule (3). Here, where there are more syllables than tones available to link to them, two rules are needed to account for the data, a rule of default L insertion and its complement rule of H spreading.¹⁵

¹⁵One might propose a rule that spreads any tone, L or H. I'll call it tone-node spreading. There are two motivations for a default L rule.

- (1) Default L can be independently motivated. All noun class prefixes (Thomas, in preparation) and verb person prefixes are low toned in the absence of additional overlaying morphemes. I therefore assume that all such prefixes are lexically toneless and subject to a default L rule. So, default L is useful outside of the stratum where stems are derived. There is no context that I am aware of where tone spreading would apply outside of stem derivation.
- (2) Default L is slightly simpler. Tonal node spreading involves the insertion of structure, whereas default L inserts content. Here is a comparison of the two rules showing tonal node spreading to be more marked than default L:

Tonal node spreading	Default L
I. c. structure	
II. tonal node	II. [-upper]

(20) Default L insertion

II. [-upper]

Graphically: V --> V
 L*

(--> V) by UAC
(L)

In prose: this says that the content of a low tone is inserted wherever there is a free anchor.

(21) H spreading

I. c. structure

II. [+upper]

Graphically: V V --> V V
 | |/
 H H

In prose: structure is inserted between a (linked) high tone and a (free) anchor on its right.

A problem arises if the lexical tone and a low TAM tone are sequentially concatenated to a class II stem. H spreading could apply before TAM tone is assigned, yielding a wrong result. Therefore, lexical tone and TAM tone must be applied simultaneously to the root. Here is a derivation:

(22) Derivation of *bédánígí* 'take:impf:recip:hab'

bédá input (including lexical and TAM tone)
H*L*

bédá UAC (H spreading cannot apply)
H L

bédána reciprocal
H L

bédána default L insertion (20)
H L L*

bédána resolution of OCP (Archangeli and
H L/ Pulleyblank 1986:136ff)

bédanaga habitual
H L/

bédanaga default L insertion, resolution of OCP,
H L/ / output

A derivation of a class III stem is straightforward. A TAM tone is assigned and spread through the stem.

(23) Derivation of (class III) *jísígí* 'return:cs:hab:pf', ignoring derivation of the TAM theme vowel¹⁶

<i>ji</i> H°	lexical input (with perfective theme vowel)
<i>jí</i> H	UAC
<i>jísi</i> H	causative
<i>jísí</i> H/	H spreading (21)
<i>jísígí</i> H/	habitual
<i>jísígí</i> H/ /	H spreading (=output)

3.2 Nuance #1: class I single-syllable stems and their derivatives

There are two nuances in the data presented thus far. The first concerns class I stems having single-syllable perfectives. The stems *biá* 'fell a tree', *gǎ* 'go', *geá* 'say' and *kiá* 'descend from' are examples. Their imperfectives are *bī*, *gě*, *gī*, and *kī*.

It turns out that all such stems seem to behave like class Ia stems when a derivational suffix is added. Thus, the causative derivatives of the forms cited in the previous paragraph are *bīsí*, *gěsí*, *gīsí*, and *kīsí*. Now their resemblance to class Ia stems is illusory. Ordering TAM tone insertion before derivational affixation brings about the rising contour on the first syllable of such forms without needing recourse to the feature [branching]. Here is a derivation:

¹⁶Each TAM configuration has a theme vowel which is found on the last vowel of the verb stem and on the vowel preceding the habitual -g. See Thomas (to appear) for details.

(24) Partial derivation of *kĩsí* 'descend:cs:pf'

ki input (ignoring vowel behavior)

L[•]H[•]

ki UAC

|
L H[•]

kĩ H retrolinking (3)

| \
L H

kĩsi causative

| \
L H

kĩsí H spreading (21) (output)

| \ |
L H

I should note that the class of such verbs is a small one, containing 13 members, of which I here give an exhaustive list. (I use the causative suffix because it is productive for the whole set. Other derivatives are possible, and the same results would be obtained with respect to tone on the first syllable.)

(25) Class Ia verbs with single-syllable perfectives (exhaustive)

<u>citation</u>	<u>pf</u>	<u>pf:cs</u>	<u>gloss</u>
<i>boá</i>	<i>bũ</i>	<i>bũsí</i>	'take'
<i>biá</i>	<i>bĩ</i>	<i>bĩsí</i>	'fell'
<i>doá</i>	<i>dũ</i>	<i>dũsí</i>	'dress hair'
<i>doá</i>	<i>dũ</i>	<i>dũsí</i>	'pound'
<i>gă</i>	<i>gě</i>	<i>gěsí</i>	'go'
<i>geá</i>	<i>gĩ</i>	<i>gĩsí</i>	'say, do'
<i>kiá</i>	<i>kĩ</i>	<i>kĩsí</i>	'descend'
<i>kpuá</i>	<i>kpũ</i>	<i>kpũsí</i>	'invert'
<i>ndiá</i>	<i>ndĩ</i>	<i>ndĩsí</i>	'dive'
<i>ɸuá</i>	<i>ɸũ</i>	<i>ɸũsí</i>	'sweep'
<i>siá</i>	<i>sĩ</i>	<i>sĩsí</i>	'brush on'
<i>soá</i>	<i>sũ</i>	<i>sũsí</i>	'give enema'
<i>tiá</i>	<i>tĩ</i>	<i>tĩsí</i>	'rub'

3.3 Nuance #2: Localized tone spreading

I examine some single-syllable stem class II verbs when conflated with the imperfective TAM tone.

(26) Single-syllable stem class II verbs in the imperfective

<u>citation</u>	<u>impf</u>		<u>gloss</u>
éá	éá	*éa	'eat'
éágá	éága	*éaga	'eat:hab'
tóá	tóá	*tóa	'move'
tóísá	tóísa	*tóisa	'cause to move:cs'

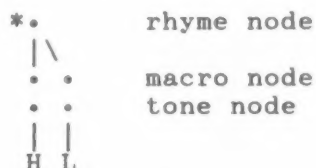
Apparently a constraint is at work here: a low tone and a high tone can be associated to two immediately adjacent vowels only in that order. With such a constraint in operation, the UAC cannot apply in a one-to-one fashion: it must skip over the second vowel if the first vowel is not separated from it by a consonant. In such a case, H spreading then applies, linking high tones to the second vowels of such stems.

I formalize as follows:

(27) Rhymes may not license (cf. Goldsmith 1990:104ff) an HL melody.

The idea here is that two immediately adjacent vowels could be analyzed to be dominated by the same rhyme, the first vowel being a nucleus, the second a coda. If an HL melody could not be licensed to a single rhyme node, then the only repair strategy available to the language would be to allow high tone spreading to the second vowel.¹⁷

(28) Diagram of (27)



¹⁷It is also interesting to note that there is no stem class IIa where there are falling contours on the first syllable of the imperfective stem in a manner symmetric with the rising contours found in stem class Ia. (27) is consistent with this observation.

(29) Derivation fragment of *tóisa* 'move:cs:impf'¹⁸

<i>toi</i> H°L°	input
<i>tói</i> H L°	UAC (floating L cannot link)
<i>tó í</i> H/L°	H spreading (21)
<i>tó ísa</i> H/L°	causative
<i>tó ísa</i> / H L	UAC
<i>tóisa</i>	output

¹⁸Alternative analyses are possible. One is to posit a rule of L delinking, as shown in the following derivation fragment of 'cause to move:cs:impf':

<i>toi</i> H°L°	input
<i>tói</i> HL	UAC
<i>tói</i> H	L deletion
<i>tóí</i> H/	H spreading
<i>tóísa</i> H/ L°	default L
<i>tóísa</i> H/ L	UAC
<i>tóísa</i>	output

The preceding derivation involves one more step, and appeals to two more rules (default L and L deletion) than that involving a constraint against HL sequences on immediately adjacent vowels, as seen in the main text. Furthermore, adding an L in the derivation then deleting it seems less elegant than having a constraint handy to bar the application of default L in the first place.

3.4 Digression: tone-bearing units

In the discussion so far, I have assumed that only vowels are tone-bearing units. In fact, not only vowels, but also nasals can bear tone in Komo. This is most evident in the rare cases where nasals bear high tones. Here is a nearly exhaustive list: *ma* 'mother (infantile)', *mbé* [animate, near demonstrative pronoun], *mbó* [animate, far demonstrative pronoun], *na-* [allophone of the 3s subject prefix when concatenated before an imperfective stem], *ndé* [inanimate, near demonstrative pronoun], and *ndó* [inanimate, far demonstrative pronoun], *ngbe* 'whistle', *nsa* 'fire, firewood'.¹⁹

Nasals can also be assigned default L tone. Such is the case in nouns having an initial nasal immediately followed by a voiceless obstruent: they always surface with an overt low tone. This can be demonstrated by having a Komo speaker pronounce a word, then whistle its tone melody. In the following table, word-initial nasals preceding a voiceless obstruent receive a whistled tone, while those preceding a voiced obstruent do not.

(30) Word initial nasals: whistle test

<u>word</u>	<u>whistled melody</u>	<u>gloss</u>
Before voiced obstruents:		
<i>mbángo</i>	HL	'quickly'
<i>ndíu</i>	HL	'however'
<i>njóki</i>	HL	'bee'
<i>ngómú</i>	HH	'only child'
<i>ngbángbá</i>	HH	'shelter'
Before voiceless obstruents:		
<i>mpáti</i>	LHL	'game track'
<i>mφáse</i>	LHL	'twin'
<i>ntíndí</i>	LHH	'civet cat'
<i>nsungú</i>	LLH	'manioc'
<i>ncánjá</i>	LHH	'side'

¹⁹There is diachronic evidence as to why *ma* and *na-* do not violate (27). In related languages such as eBhele, such words begin with an [í], yielding *íma* and *ína*. Apparently, the autosegmental content of the initial [i]s were diachronically deleted, leaving rhyme nodes to which the initial nasals were reassigned in the lexicon. Since (27) concerns unique rhyme nodes dominating HL sequences, not two rhyme nodes, the constraint is not violated.

<i>nkeke</i>	LLL	'skin'
<i>nkpángbá</i>	LHH	'riverbank'

The problem of how the nasals in the second set of examples may bear tone is resolved by having recourse again to Goldsmith's (1990) notion of licensing.

(31) An onset may license only one value each of [voiced] and [implosive].

Since a nasal is [+voiced] and [-implosive], it follows that, if it is adjacent to an obstruent, then that obstruent must also be [+voiced] and [-implosive] in order for the nasal to be dominated by the onset that dominates the obstruent.

I assume that, if an initial nasal is not part of the first onset of a word, then it is dominated by a rhyme and can bear tone. If I further assume, on diachronic grounds, that such nasals are noun class prefixes (cf. Thomas, in preparation), then default L can apply to such nasals, yielding the results of (30).

How, then, would tone-bearing nasal plus voiced, non-implosive obstruent clusters as in *ńgbe* 'whistle' and *ńdɔ́* [inanimate, far demonstrative] be handled? (Both are given two tones when subjected to the whistle test.) I assume that such words are exceptionally assigned two rhymes (or two syllables) each in the lexicon, as well as an HL melody for *ńgbe*, and an H melody (that spreads) for *ńdɔ́*. An appropriate linking strategy then derives the following.

(32) Representations of *ńgbe* and *ńdɔ́* (R = rhyme, O = onset, S = syllable)

S	S	S	S
	/		
RO	R	ROR	
ńgbe		ńdɔ́	
H	L	H/	

A last problem concerns the following:

(33) Word medial nasal plus voiceless obstruent clusters²⁰

ḡá-ń-tekí
3p-3s-send:pf
'they sent 3s'

a-n-tekí
3s-3s-send:pf
'3s sent 3s'

ḡá-ń-téní
3p-3s-cut:pf
'they cut 3s'

a-n-téní
3s-3s-cut:pf
'3s cut 3s'

In such cases, the nasal in effect assimilates in tone to the adjacent vowel, despite the fact that the third person singular object lexeme contains an autosegmental low tone (see section 4.2.1). Given the constraints (27) and (31), the following sequence results.

- i) Onsets may only license one value of [voiced] and [implosive]. The constraint implies that the nasals are not part of onsets, and therefore must be tone-bearing codas.
- ii) Rhymes may not license HL melodies. The constraint prevents the autosegmental L of the object lexeme from linking to the nasal if the adjacent vowel is linked to a high tone.
- iii) High tone spreading then takes place if the adjacent vowel is linked to a high tone. The autosegmental L associates otherwise, then undergoes OCP-motivated repair to yield a branching L that is linked to both the vowel and the nasal.

The result is HH or LL surface melodies as in (33).

4 Tone in inflectional prefixes

So far I have only exhibited tonal behavior in the verb stem. The only rules operating were those of Default L and its complement of H spread. In this section, a new tone process is described: dissimilation. This rule is then shown to interact in interesting ways with the morphology.

²⁰A similar tonal paradigm could be obtained with nasal plus voiced implosive clusters, e.g. by substituting *ḡí* 'chase:perfective stem' and *ḡéí* 'hate:perfective stem'.

4.1 Derivation of subject prefixes

4.1.1 Positive subject prefixes and their toneless nature

Positive subject prefixes normally have a low tone, with the exception of the third person plural, which normally has a high tone. In the following tables, I first show the paradigm with all possible allomorphs, then illustrate with the perfective and present continuous TAM configurations.

(34) Subject prefixes²¹

1s: <i>ne-/ne-/ni-</i>	1p: <i>be-/be-/bi-</i>
2s: <i>o-/o-/u-</i>	2p: <i>bo-/bo-/bu-</i>
3s: <i>a-</i>	3p: <i>bá-</i>

(35) Perfective of *gbagá* 'be difficult'

1s: <i>ne-gbagí</i>	1p: <i>be-gbagí</i>
2s: <i>o-gbagí</i>	2p: <i>bo-gbagí</i>
3s: <i>a-gbagí</i>	3p: <i>bá-gbagí</i>

The present continuous TAM configuration consists of a subject prefix, a low tone participle formative *o-/o-/u-*, and a verb stem configured in the imperfective.

(36) Present continuous (*abá* 'chat')

1s: <i>ne-o-aba</i>	1p: <i>be-o-aba</i>
2s: <i>o-o-aba</i>	2p: <i>bo-o-aba</i>
3s: <i>a-o-aba</i>	3p: <i>bá-o-aba</i> ²²

The 3p prefix is the reflex of the Bantu class 2 concord marker. It takes a high tone when preceding a verb

²¹In this table I show all the possible allomorphs in order of their frequency of appearance. They agree in ATR with the stem, and in height with the initial stem vowel if there is no consonant preceding that vowel and if there is agreement in backness. For details, see Thomas (to appear). Since I am most concerned with tone here, I do not always show all possible allomorphs of other subject or object configurations in other tables below.

²²Note that the HL constraint (27) does not apply to this form. This is because [áo] in *báoaba* are linked to separate rhymes. In fact, there is an empty onset before the participle formative *o-* that can host a locative adverbial *k-*, as in *bákoaba* 'and s/he preached there'. In closely related eBhele, on the other hand, the participle formative is *lo-*.

and a low tone when preceding a noun. A concrete nominalization is a noun identical to a 3p perfective except that the concord marker takes a low tone instead of a high tone and the TAM tone is a low tone instead of a perfective high tone.

(37) The class II concord marker, comparison of its tonal alternation in verbal and nominalization contexts

class I:

<i>ḡa-ḡangigi</i>	'teachers' (<i>ḡangíáḡá</i> 'to teach')
<i>ḡá-ḡangígí</i>	'they have taught'

class Ia:

<i>ḡa-ḡeki</i>	'builder' (<i>ḡěká</i> 'build')
<i>ḡá-ḡěkí</i>	'they have built'

class II:

<i>ḡa-bédanigi</i>	'worker' (<i>bédánáḡá</i> 'work')
<i>ḡá-bédánígí</i>	'they have worked'

class III:

<i>ḡa-gui</i>	'divers' (<i>ḡúíá</i> 'dive')
<i>ḡá-gúí</i>	'they have dived'

Because the tone of the class 2 concord marker prefix can vary like this, I assume that it is lexically toneless, and that the high tone assigned to it in a verbal context is assigned by a lexically conditioned rule:

(38) Third person plural subject tone (derivational stratum)²³

- II. [+upper]
- III. trigger: [3p subject:verb]
- target: (free)

²³I take it that *derivation* is taking place when a prefix is being derived, and that *inflection* is taking place when that prefix is concatenated with a verb stem or with another prefix.

My motivation for this analysis is that *ḡa-* is diachronically the Bantu class 2 (human plural) concord marker, which is prefixed to both verbs and nouns. Whether or not the concord prefix gets a high tone depends upon whether it precedes a noun or a verb.

That is, a high tone is inserted where there is a third person plural subject prefix in the context of a verb.

The other subject prefixes may take a high tone in the narrative tense, which consists of a person prefix, a participle formative *o-/o-/u-*, and the verb stem configured in the imperfective with a low tone TAM marker.

(39) Narrative tense (*gogá* 'pound')

1s: *né-o-goga*

2s: *ó-o-goga*

3s: *á-o-goga*

1p: *ḡé-o-goga*

2p: *ḡó-o-goga*

3p: *ḡá-o-goga*

I take it that the high tone on the subject prefixes are assigned then by a lexically conditioned rule.

(40) Narrative high tone insertion (derivational stratum)

II. [+upper]

III. trigger: [narrative]
target: (free)

There are other cases of a high tone occurring on the subject prefix coming up below. I included the case of the narrative tense here in order to make the point that subject prefixes are toneless. They are either assigned a high tone as in (38) and (40), or are assigned a low tone by default rule (20).

This then makes three classes of morphemes in Komo that are toneless: class III verb stems, derivational suffixes, and positive subject prefixes.

4.1.2 Negative subject prefixes

Another set of subject prefixes occur in a negated clause. I simply call these 'negative subject prefixes'.²⁴ The negative subject prefixes usually have a high tone, as in the following tables.

(41) Negative subject prefixes

1s: *ké-/ké-/kí-*

2s: *kó-/kó-/kú-*

3s: impf: *ḡa-/else: ká-*

1p: *ḡéké-/ḡéké-/ḡékí-*

2p: *ḡókó-/ḡókó-/ḡókú-*

3p: impf: *ḡána-/else: ḡáká-*

²⁴In Thomas (to appear), such prefixes are shown to be derivable from their non-negative counterparts. In that paper, I refer to these prefixes as 'inflectional morpheme complexes'.

(42) Perfective negative (*biká* 'come')

1s: <i>ké-bikí</i>	1p: <i>ḡéké-bikí</i>
2s: <i>kó-bikí</i>	2p: <i>ḡókó-bikí</i>
3s: <i>ká-bikí</i>	3p: <i>ḡáká-bikí</i>

(43) Imperfective Negative (*úbá* 'know')²⁵

1s: <i>ké-u-úba</i>	1p: <i>ḡéké-u-úba</i>
2s: <i>kú-u-úba</i>	2p: <i>ḡókú-u-úba</i>
3s: <i>ná-u-úba</i>	3p: <i>ḡána-u-úba</i>

It is shown below in the section on the subjunctive that the final syllable of the negative subject prefix can have a low tone. Therefore, I extend the previous generalization about subject prefixes to negative subject prefixes: all subject prefixes are lexically toneless. This leads to a rule that assigns a high tone to a negative subject prefix.

(44) Negative tone (derivational stratum)

- II. [+upper]
- III. trigger: [neg]
- target: (free)

That is, a high tone is inserted in the context of a negative morpheme.

I further illustrate with the derivation of a subject prefix.

(45) Derivation of *ḡéké-* '1p:neg-'

[ḡeke] _{neg}	input
[ḡeke] _{neg} H'	negative tone (44)
[ḡéke] _{neg} H	UAC

²⁵As with the other tenses that use the imperfective TAM stem configuration, this one makes use of the participle formative. Also note the suppletive forms of the third person subject prefixes. I do not discuss them further here, except to note that the tone-bearing nasal is probably the diachronic result of the [i] dropping from an original *ina-*.

[6éké]_{neg} H spreading (21)
 H/ (output to next stratum)

4.2 Derivation of object prefixes and the participle formative

4.2.1 Third person singular and noun-class 1 prefix

The third person singular object and noun-class 1 prefix includes a nasal and a lexically prelinked low tone. When prefixed before a class II high tone stem, the prefix acts to create a rising contour on the vowel instead of a flat high tone.²⁶

(46) Third person singular object and noun-class 1 prefix

As an object prefix:

Class I stem (úbá 'know', éká 'trap'):

<i>a-moŋí</i>	<i>a-nesí</i>
3s-3s:give:pf	3s-3s:tire:cs:pf
'I gave him/her'	's/he tired him/her'

Class II stem:

<i>6á-mŭbí</i>	<i>6á-někí</i>
3s-3s:give:pf	3s-3s:trap:pf
'they know him/her'	'they trapped it'

²⁶In many Bantu languages, what are called noun class prefixes can be prefixed to both noun and verb stems, in the latter case, as subject or object concord markers. Thus, I refer to a prefix as having different functions depending upon the class of word it is appended to.

Vowel-initial class Ia and III verb stems are not attested.

More detailed morpheme cuts are not given because of evidence that vowel features of a derivational morpheme do not necessarily link up to that morpheme's lexically assigned skeletal positions.

For an analysis of the *m-/n-* alternation in the third person singular object prefix, see Thomas (to appear).

As a noun class prefix:

Class I stem (*ɔʔáná* 'call', *eɓágá* 'set nets'):

<i>mɔʔani</i>	<i>neɓigi</i>
cl.1:call:pf	cl.1-set:net:hab:pf
'call'	'net fisher'

Class II stem (*ɔmbá* 'cook (tr)', *éngá* 'help'):

<i>mɔmbanigi</i>	<i>něngi</i>
cl.1:cook:recip:hab:pf	cl.1:help:pf
'cook'	'helper'

I take this phenomenon to be an instance of depression: the low tone on the object prefix or the class I prefix spreads from the nasal consonant onto the following vowel, as in rule (47). This rule must be sensitive to the morphological context of an object in order to prevent a depressor nasal from triggering downstep in subjunctive forms, as is seen in section 4.5.

(47) High tone depression (inflectional stratum)²⁷

- I. c. structure
- II. [-upper]
- III. trigger: [+nasal]

Graphically,

N]obj	[V --> N V				
L·	<table border="0"> <tr> <td> </td> <td>/ </td> </tr> <tr> <td>H</td> <td>L H</td> </tr> </table>		/	H	L H
	/				
H	L H				

For example,

<i>n éngi</i>	input after UAC and inflection
L·H L	

<i>n ěngi</i>	high tone depression (47)				
<table border="0"> <tr> <td> / </td> <td> </td> </tr> <tr> <td>L H</td> <td>L</td> </tr> </table>	/		L H	L	(= output)
/					
L H	L				

²⁷This rule does not interact with any other rule. It is thus hard to determine in what stratum it takes place, whether in the inflectional stratum or in the post-lexical stratum. I assume that the rule takes place as an inflectional process in keeping with when the prefix is concatenated to the stem.

That is, structure is inserted from a low tone linked from a nasal to a vowel that dominates a high tone. A rising contour surfaces.

There is a feature about the statement of (47) that has not come up so far: both trigger and target must be linked. This is a consequence of both [-upper] and [+upper] being referred to by the rule; the redundancy rule ordering constraint must then have applied, requiring that default tones be assigned to each vowel tone-bearing unit left over after applying the UAC and H spreading (Archangeli and Pulleyblank 1986:15,123-124).

4.2.2 First- and second-person dissimilation.

In the context of a low-tone subject prefix, the first- and second-person object prefixes take the forms shown in the following table.

(48) First- and second-person object prefixes

1s: <i>mo-/mɔ-/mu-</i>	1p: <i>só-/sɔ-/sú-</i>
2s: <i>ko-/kɔ-/ku-</i>	2p: <i>nó-/nɔ-/nú-</i>

(49) Object prefix, perfective (*ḡétá* 'hit')

<i>a-mɔ-ḡétí</i>	<i>a-sɔ-ḡétí</i>
3s-1s-hit:pf	3s-1p-hit:pf
's/he hit me'	's/he hit us'
<i>a-kɔ-ḡétí</i>	<i>a-nɔ-ḡétí</i>
3s-2s-hit:pf	3s-2p-hit:pf
's/he hit you'	's/he hit you:pl'

(50) Object prefix, present continuous

<i>a-ɔ-mɔ-ḡéta</i>	<i>a-ɔ-sɔ-ḡéta</i>
3s-ptp-1s-hit:impf	3s-ptp-1p-hit:impf
's/he's hitting me'	's/he's hitting us'
<i>a-ɔ-kɔ-ḡéta</i>	<i>a-ɔ-nɔ-ḡéta</i>
3s-ptp-2s-hit:impf	3s-ptp-2p-hit:impf
's/he's hitting me'	's/he's hitting us'

It is shown below that the 3s object prefix has a low tone, and that the 3p object prefix has a high tone. Thus, all the plural object prefixes have high tones and all the singular object prefixes have low tones. I therefore propose a rule for object-prefix tone.

(51) Plural object-prefix tone (inflectional stratum)

II. [+upper]

III. trigger: - [plural object]
target: (free)

That is, a high tone is inserted where there is a context of a plural object prefix and a free vowel available to take the high tone. Now this insertion is ordered in the inflectional stratum. This is necessary to permit dissimilation wherever the subject prefix has a high tone, as is now described.

If the subject prefix has a high tone and is adjacent to an object prefix, a first or second person object prefix has a low tone. This is obviously true for singular object prefixes, which have low tones anyway. I illustrate here for the first- and second-person plural object prefixes. In each example that follows, the plural object prefix, which would be expected to have a high tone, instead surfaces with a low tone.

(52) Dissimilation of the high tone in plural object prefixes

ḡá-so-bebí
3p-1p-praise:pf
'They praised us.'

ḡáká-so-bebí
3p:neg-1p-praise:pf
'They didn't praise us.'

ḡá-no-bebí
3p-2p-praise:pf
'They praised you.'

ḡáká-no-bebí
3p:neg-2p-praise:pf
'They didn't praise you.'

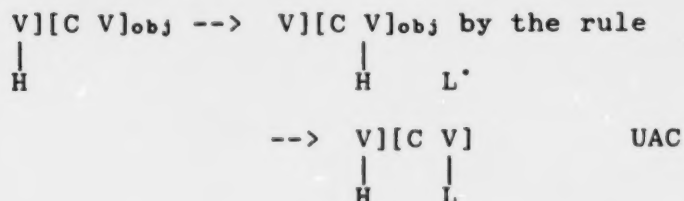
So, a mechanism is needed to account for dissimilation with first- and second-person plural object prefixes. What is proposed here is that L insertion takes place in the inflectional stratum before object-prefix tone insertion takes place.

(53) L after H (inflectional stratum)

II. [-upper]

III.
$$\begin{array}{c} \text{V} \\ | \\ \text{H} \end{array} \left\| \begin{array}{c} \text{C V} \\ \text{—} \end{array} \right\|_{\text{object}}$$

Graphically,



The restriction of targets to object prefixes prevents dissimilation occurring on a verb stem whose initial vowel is linked to a high tone.

A derivation would look like this:

(54) Derivation of *ḡákásobebí* 'they didn't praise us'

Derivational stratum:

[3p:neg] [praise:pf]	input from the lexicon
[ḡaka] [so] [bebi] L'H'	lexical insertion of tone
[ḡaka] [so] [bebí] L H	UAC
[ḡaka] [so] [bebí] insertion H' L H	lexically conditioned H rules (38) or (44) ²⁸
[ḡáká] [so] [bebí] H L H	UAC
[ḡáká] [so] [bebí] H/ L H	H spreading

Inflectional stratum:

[[ḡáká][so][bebí]] H/ L H	concatenation
[[ḡáká][so][bebí]] H/ L L H	L after H (53)

²⁸There is no crucial ordering relationship between plural subject and negative H insertion. Only one can operate, however, because of the OCP.

[6ákásobebí] BE, resolution of OCP, output

$\begin{array}{ccc} | & | & | \\ // & // & | \\ H & L & H \end{array}$

Thus, dissimilation is accomplished by putting lexical insertion into the same stratum as an L-insertion rule and ordering the L insertion before morphological high-tone insertion. Object high-tone insertion does not take place because the rule is disjunctive with L insertion. That is, the target conditions for plural object H-tone insertion (51) are a proper subset of the target conditions for L insertion (53).

Also, default L cannot apply to the object prefix in the preceding derivation because it is a more general rule, which is in disjunction with both object high-tone insertion and H spreading. Either would be expected to apply before default L, depending upon how one interprets the OCP.

4.2.3 Third person plural, the participle formative

The third-person-plural object prefix is also discussed in Thomas (to appear). It consists of the feature [-low] and a high tone. However, it has no skeletal content. The behavior of the third-person-plural high tone is shown in the table below.²⁹

(55) 3p object (*ḡétá* 'hit', *ngodéá* 'tell')

Perfective:

1s:3p <i>ně-ḡétí</i>	1p:3p <i>ḡě-ḡétí</i>	'I/we hit them'
2s:3p <i>ḡ-ḡétí</i>	2p:3p <i>ḡḡ-ḡétí</i>	'you hit them'
3s:3p <i>ě-ḡétí</i>	3p:3p <i>ḡé-ḡétí</i>	'she/he/they hit them'

1s:3p <i>ně-ngodí</i>	1p:3p <i>ḡě-ngodí</i>	'I/we told them'
2s:3p <i>ḡ-ngodí</i>	2p:3p <i>ḡḡ-ngodí</i>	'you told them'
3s:3p <i>ě-ngodí</i>	3p:3p <i>ḡé-ngodí</i>	'she/he/they told them'

Imperfective

1s:3p <i>ne-ḡ-ḡéta</i>	1p:3p <i>ḡe-ḡ-ḡéta</i>	'I/we are hitting them'
------------------------	------------------------	-------------------------

²⁹Note that the third-person-plural object prefix contains an autosegmental [-low]. This results in the vowel quality alternation seen where third-person-plural object prefixes are conflated onto third-person subject prefixes. This is discussed more fully in Thomas (to appear).

2s:3p ɔ-ɔ-βéta 2p:3p βɔ-ɔ-βéta 'you are hitting them'
 3s:3p a-ɔ-βéta 3p:3p βá-ɔ-βéta 'she/he/they are
 hitting them'

1s:3p ne-ó-ngodea 1p:3p βe-ó-ngodea 'I/we are telling
 them'
 2s:3p o-ó-ngodea 2p:3p βo-ó-ngodea 'you are telling
 them'
 3s:3p a-ó-ngodea 3p:3p βá-ó-ngodea 'she/he/they are
 telling them'

Narrative

1s:3p né-ɔ-βéta 1p:3p βé-ɔ-βéta 'and I/we hit them'
 2s:3p ɔ-ɔ-βéta 2p:3p βɔ-ɔ-βéta 'and you hit them'
 3s:3p á-ɔ-βéta 3p:3p βá-ɔ-βéta 'and she/he/they hit
 them'

1s:3p né-ó-ngodea 1s:3p βé-ó-ngodea 'and I/we told
 them'
 2s:3p ó-ó-ngodea 2s:3p βó-ó-ngodea 'and you told
 them'
 3s:3p á-ó-ngodea 3s:3p βá-ó-ngodea 'and she/he/they
 told them'

The rules change for the 3p object. However, lexical insertion of a high tone for 1p and 2p objects requires a free target. Lexical insertion for the 3p object always occurs, whether the target is free or not. Furthermore, 3p object H-insertion occurs after default L-insertion on both the subject prefix (as is seen in the perfective paradigm) and the participle formative (as is seen in the narrative paradigm). I therefore take it that 3p object H insertion takes place in the inflectional stratum (like the other object prefixes), after default L insertion occurs in the derivational stratum.³⁰ Thus I can state 3p object H insertion.

(56) 3p object H insertion (inflectional stratum)

[3p object] --> [+upper]

Rules as stated thus far take care of everything except for where a flat, high tone shows up on the participle formative in the imperfective examples above. For this, I propose a post-lexical rule of contour expansion that comes

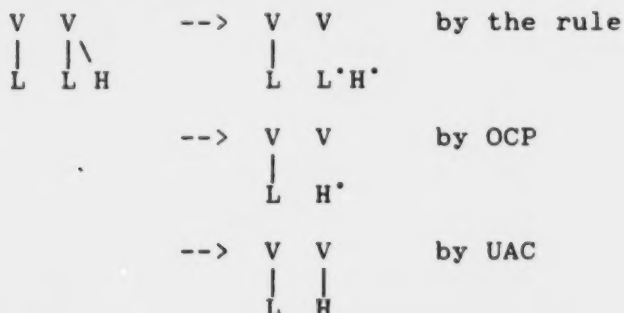
³⁰It also must come after L after H, but this is a result of the OCP, which prevents 3p object H insertion applying except after a low tone.

again into play when discussing falling contours late in this paper. What this rule accomplishes is a spread of a contour tone over two vowels where there is either an LR or an HF melody and no intervening consonants. The result is an LH or an HL melody, respectively. (In (57), part I.b. is not specified, being the default parametric value, maximal.)

(57) Contour expansion (inflectional stratum)

- I. a. delete
 c. structure
 II. tonal node³¹
 III. target:
- | | |
|-----------|------------------------|
| V | V |
| | |
| [α-upper] | [α-upper] [-α-upper] |

Graphically, where a = -,



A derivation of an imperfective from (55) takes into play most of the rules that are applicable to this set of paradigms.

(58) Partial derivation of *neóngodea* 'I am telling them'

Derivational stratum

[ne]	[o]	[ngodea]	input ³²
		//	
L		L	

³¹The reason for deletion of a node and not a feature comes clear in the second discussion of this rule later in the paper.

³²The participle formative lexeme contains a low tone. This is shown to be necessary for the derivation of imperfective verbs where there is a locative and the subject prefix is high toned. See section 4.4.

[ne] [o] [ngodea] Default L insertion (20)
 | |
 L* L L //

[ne] [o] [ngodea] UAC
 | |
 L L L //

Inflectional stratum

[[ne][o][ngodea]] Concatenation
 | |
 L L L //

[[ne][o][ngodea]] 3p-object tone insertion (56)
 | |
 L L H* L //

[[ne][ö][ngodea]] H retrolinking (3)
 | |
 L L H L //

[neöngodea] BE
 | |
 LL HL

Post-lexical stratum

[neo ngodea] Contour expansion
 |
 LL*H*L

[neo ngodea] OCP
 |
 L H* L

[neöngodea] UAC and output
 | |
 LH L

4.3 Distant past

The distant past varies in its effect on verb prefixes depending on whether the subject is negative or positive.

If the subject is negative, the distant past is formed simply by adding *dV-*, where the V is the repetition of the first or second person theme vowel [E] or [O] respectively.

(59) Negative distant past

1s: <i>déké-/déké-/dékí-</i>	1p: <i>débéké-/débéké-/débékí-</i>
2s: <i>dókó-/dókó-/dókú-</i>	2p: <i>dóbókó-/dóbókó-/dóbókú-</i>
3s: <i>dáká-</i>	3p: <i>dábáká-</i>

Moreover, the distant past has predictable effects on a third-person object prefix, triggering dissimilation.

(60) Negative distant past plus object (*kóndá* 'want')

3s:1p <i>dákásokóndí</i>	's/he didn't want us'
3s:2p <i>dákánokóndí</i>	's/he didn't want you'
3s:3p <i>dákékóndí</i>	's/he didn't want them'

The negative form of the distant past is thus uncomplicated. Very little need be said thus far about the nature of the lexical tone of the distant past.

The positive distant past, however, is a different story. In the following table, an HL melody is pervasive in the plural subject-prefix complexes, including in the third-person plural, which thus far has always had a high tone in verbal (not nominalizing) contexts. Here is the paradigm:

(61) Positive distant past

1s: <i>dé-/dé-/dí-</i>	1p: <i>débe-/débe-/débi-</i>
2s: <i>dó-/dó-/dú-</i>	2p: <i>dóbo-/dóbo-/dóbu-</i>
3s: <i>dá-</i>	3p: <i>dába-</i>

Paradigm with *kóndá* 'want'

1s: <i>dé-kóndí</i>	1p: <i>débe-kóndí</i>
2s: <i>dó-kóndí</i>	2p: <i>dóbo-kóndí</i>
3s: <i>dá-kóndí</i>	3p: <i>dába-kóndí</i>

The positive distant past also triggers dissimilation in object prefixes that would normally carry a high tone. This is a predicted outcome of the L after H rule (53).

(62) Positive distant past with object prefixes

3s:1p <i>dásokóndí</i>	's/he wanted us'
3s:2p <i>dánokóndí</i>	's/he wanted you (pl.)'
3s:3p <i>dékóndí</i>	's/he wanted them'

Thus, the positive distant past seems to behave in a different manner than the negative distant past, in that the negative form triggers no unusual tonal alternations while

the positive form displays an HL melody wherever there are free syllables available to take an L tone.

For reasons that become clear in section 4.5, on subjunctives, I propose that the high tone be assigned lexically, and that the low tone be assigned by a modification of L after H.

(63) Distant past rules (derivational stratum)

A. Lexical insertion: [dp] --> H

B. L after H (53) modified)

II. [-upper]

III.
$$\begin{array}{c} V \\ | \\ H \end{array} \left] \left[\begin{array}{c} C V \\ \hline \end{array} \right] \right.$$
 subject: positive or object

Graphically,

$$\begin{array}{ccc} V]_{dp}[CV]_{\text{subject: positive}} & \rightarrow & V][CV] \quad \text{by the rule} \\ H & & H \quad L \end{array}$$

$$\rightarrow V][CV] \quad \text{by UAC}$$

$$H \quad L$$

(64) Derivation of distant past subject prefixes

[dp:2p] [dp:2p:neg]

[dɔ][6o] [dɔboko] Non-tonal part of subject-prefix complexes

[dɔ́][6o] [dɔ́boko] Distant past (63A), UAC

H H

[dɔ́][6o] ----- Distant past (63B), UAC

H L

----- [dɔ́bɔ́kɔ́] H spreading (21)

H/ /

[dɔ́bɔ] [dɔ́bɔkɔ] Output to inflectional stratum

What if distant past co-occurs with the participle formative? The participle formative retains a low tone. In fact, except where post-lexical contour expansion is

operating, the participle formative invariably contains a low tone (the surface tone may be a rising tone due to the addition of a third-person-plural object suffix). For this reason, I modify the analysis and propose that the participle formative be lexically assigned an L tone. Here are examples.

(65) Distant past plus participle formative

<i>dé-o-kónda</i> dp:1s-ptp-want:impf	<i>débe-o-kónda</i> dp:1p-ptp-want:impf
'I was wanting'	'we were wanting'
<i>déké-o-kónda</i> dp:1s:neg-ptp-want:impf	<i>débéké-ō-kónda</i> dp:1p:neg-ptp:3p-want:impf
'I was not wanting'	'we were not wanting them'

If the distant past co-occurs with two person prefixes, L after H still applies if the final tone on the subject prefix is a high tone. There are no surprises. (Note, however, that the bottom left example is ambiguous: third-person plural and unspecified object forms are homophonous because the high tone of the third-person-plural object morpheme is indistinct from the high tone of the distant past.)

(66) Distant past plus two person prefixes

<i>dé-ko-kóndí</i> dp:1s-2s-want:pf	<i>débe-ko-kóndí</i> dp:1p-2s-want:pf
'I wanted you'	'we wanted you'
<i>dé-no-kóndí</i> dp:1s-2p-want:pf	<i>débe-nó-kóndí</i> dp:1p-2p-want:pf
'I wanted you'	'we wanted you'
<i>dé-kóndí</i> dp:1s(:3p)-want:pf	<i>débě-kóndí</i> dp:1p:3p-want:pf
'I wanted (them)'	'we wanted them'

4.4 Locative

It is possible to add a locative *k-* before the participle formative.³³ If the subject prefix is high-toned, then that high tone is depressed.

(67) Locative plus imperfective

<i>a-ko-kónda</i>	<i>ḡa-ko-kónda</i>
3s-loc:ptp-want:impf	3p-loc:ptp-want:impf
's/he is wanting you there'	'they are wanting you there'
<i>â-ko-kónda</i>	<i>ḡâ-ko-kónda</i>
nar:3s-loc:ptp-want:impf	dp:3s-loc:ptp-want:impf
'and s/he wanted'	's/he wanted'
<i>â-kõ-kónda</i>	
nar:3s-loc:ptp:3p-want:impf	
'and s/he wanted them there'	

I analyze the lexeme for the locative *k-* as including the features, but not the skeletal position, for a [k] and an autosegmental low tone. Since in closely related eBhele the participle formative is *lo-*, I suggest that an empty onset is provided by the lexeme for the participle formative to which the locative *k-* can attach.

I understand the rule of high-tone depression to be sensitive to the context of the locative, because floating L's with respect to the subjunctive are shown below to trigger rightward downstep and not leftward H depression.

³³If there is no participle formative, then the locative *ko-* is found as a clitic after the verb. Thus, *nenkóndí ko* means 'I want him/her there'.

(68) H depression (inflectional stratum)

- I. c. structure
- d. opposite direction
- II. [-upper]
- III. trigger: (free)

V][loc
|
H L'

(69) Derivational fragment of *nêkoga* 'and I went there'

[ga] L	verb stem formation, output of derivational stratum
[Co][ga] L L	inflectional stratum: participle formation
[Co][ga] k. L L L	locative
[ko][ga] k. L L L	UAC (L' autosegment cannot link)
koga L L	BE, OCP
[né][koga] H L L	subject prefix with narrative H ³⁴
[nê][koga] H L L	H depression
[nê][koga] H L	OCP
<u>nêkoga</u>	BE, output

³⁴The H of the narrative has linked to the subject prefix in the derivational stratum. For clarity in the derivation, I have omitted this part of the derivation.

4.5 Subjunctive

The Komo subjunctive is the only TAM configuration where the tone of inflectional prefixes can have an effect on the tone of the stem. In its positive form, it is characterized by a high tone occurring on the subject prefix with a full downstep to low tone occurring on the verb stem.

(70) Subjunctive, positive forms (*bísá* 'put', *bebá* 'praise')

1s: <i>nébise</i>	<i>nébebé</i>
1p: <i>ḡébise</i>	<i>ḡébebé</i>
2s: <i>óbise</i>	<i>óbebé</i>
2p: <i>ḡóbise</i>	<i>ḡóbebé</i>
3s: <i>ábise</i>	<i>ábebé</i>
3p: <i>ḡábise</i>	<i>ḡábebé</i>

From the forms with *bebá*, I note that the subjunctive stem forms with a high tone. However, from the forms with *bísá*, the subjunctive stem appears to be exhibiting something resembling downstep, except that a low tone instead of a mid tone is derived.

Now downstep is usually accounted for in autosegmental phonology by positing the existence of a floating low tone between two high tones as pictured.

(71) Traditional autosegmental account of downstep

C	V	C	V
H	L'	H	

The surface manifestation of the floating low tone is then a downstep. Such would be the case at least at some stage of derivation if the subjunctive TAM morpheme were to consist of the tonal melody HL being conflated onto the verbal prefixes and an H tone linked and spread across the verb stem.³⁵ In this way, the subjunctive's subject prefix links by UAC to the H, the tonal melody of the stem is derived in a like manner to the perfective and outputs with either an HH or an LH melody. However, a floating L is then left over between the prefix and the stem, which triggers downstep. Downstep is realized in this case as a full step rather than the more customary downstep.

³⁵The HL melody was proposed by Meeussen (1967) to be the proto-Bantu future negative pre-initial element. It was found by Hedinger (1985) in Akoose, a Bantu language (classification number A.15b, Guthrie 1953) spoken in the Republic of Cameroon.

(72) Traditional analysis of *ábise*

$\begin{array}{ccccccc} \acute{a} & [& b & \acute{i} & s & \acute{e} & \end{array} \rightarrow \acute{a}bise \text{ (surface realization)}$
 $\begin{array}{ccccccc} | & & | & & & & / \\ HL & \cdot & & H & & & \end{array}$

The traditional analysis of downstep, then, is that it is the surface realization of a floating tone. More recently, it has been shown that many apparent instances of downstep can be analyzed as surface manifestations of *linked* features yielding phonological tones with pitch between H and L (Yip 1980, Hyman 1986, Snider to appear).³⁶ In Komo, downstep not only derives a phonological tone, but that tone is a low tone (i.e., a full downstep) and not some intermediate tone between H and L.

(73) Proposed analysis of full downstep

$\begin{array}{ccccccc} C & V & C & V & \rightarrow & C & V & C & V & \text{ by a deletion rule} \\ | & & | & & & | & & | & & \\ H & L & \cdot & H & & H & & L & & \end{array}$

I next propose a rule that formalizes the Komo downstep phenomenon displayed above.

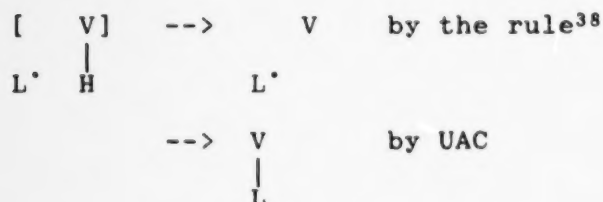
(74) Komo downstep (inflectional stratum and post-lexical stratum)³⁷

- I. a. delete
- II. [+upper]
- III. [•] tonal node
 |
 [-upper] _____

³⁶Pulleyblank (1986:44-45), however, shows that there is an authentic downstep in Dschang resulting from the surface realization of a floating L. In such a case, multiple downstep sequences are possible, a phenomenon that does not occur in Komo.

³⁷The reason for the brackets becomes clear in the section below on elision.

Graphically,



Thus, the rule simply deletes a high tone after a floating L. This L then links to the stem. The result is indistinguishable from any other L, so no intermediate tone is derivable, which is the desired result.

(75) Derivation of *ḡábise* 'they should place'

Derivational stratum:

Subject Stem

[ḡa]	[bise]	Lexical input
H [*] L [*]	H [*] H [*]	
[ḡá]	[bísé]	UAC, resolution of OCP
HL [*]	H/	

Inflectional stratum:

[[ḡá][bísé]]	Concatenation of subject and stem
HL [*] H/	
[[ḡá][bise]]	Komo downstep (74)
HL [*]	
[[ḡá][bise]]	UAC, default L, resolution of OCP
H L/	
[ḡábise]	BE and output

The subjunctive presents another interesting problem in its negative paradigm.

³⁸I assume here that any lines of association left over after the deletion of a feature are automatically erased.

(76) Subjunctive negative (*bísá* 'put', *bebá* 'praise') with surface declarative intonation

1s:	<i>kebísé</i>	1p:	<i>ḡékebísé</i>
2s:	<i>kobísé</i>	2p:	<i>ḡókobísé</i>
3s:	<i>kabísé</i>	3p:	<i>ḡákabísé</i>

1s:	<i>kebebé</i>	1p:	<i>ḡékebebé</i>
2s:	<i>kobebé</i>	2p:	<i>ḡókobebé</i>
3s:	<i>kabebé</i>	3p:	<i>ḡákabebé</i>

In these forms, no downstep takes place on the stem. Instead, all the syllables with negative *k-* take a low tone. This is in contrast to all non-subjunctive forms where syllables with negative *k-* always take a high tone. Furthermore, the first syllable of the plural prefix always takes a high tone. The plurals are easily accounted for with the HL subjunctive melody already proposed, remembering that negative high tone is assigned by a morphologically conditioned rule (44) and not by lexical insertion. UAC simply associates the HL melody to the two object-prefix syllables before negative high-tone insertion can operate. Negative high-tone insertion only applies to free targets; it therefore cannot apply in the subjunctive.

The singular subjunctive negative forms still pose a problem. Apparently, the UAC does not apply; rather the right hand L tone of the HL subjunctive melody links to the negative prefix. I must account for this with an ad hoc rule.

(77) Negative subjunctive tone assignment (derivational stratum)

- I.c. structure
 - d. opposite direction
- II. [+upper][-upper]
- III. - negative
 - subjunctive

Graphically, where [ka] is in the context of the negative subjunctive:

[ka]	-->	[ka]
H·L·		
		H· L

I know of no context in which the floating or leftover high tone surfaces in the case of the negative singular subjunctive. However, I stick with my analysis that subjunctive has an HL melody, because of the way it accounts

for the negative plural forms. (A prefixed HL melody is typical of certain Bantu tense-aspect-mood structures (Meeussen 1967, Hedinger 1985).)

(78) Derivation of *kebísé* 'I should not put' and *óókobísé* 'you (plural) should not put'

[1s:neg:subj][put:subj] [2p:neg:subj][put:subj]

Derivational stratum:

[ke]	[bise]	[óoko]	[bise]	input
H'L	H'H	H'L	H'H	
[ke]	[bise]	-----		Neg. subj. tone assignment
H'L	H'H			
[ke]	[bísé]	[óóko]	[bísé]	UAC, resolution of OCP
H'L	H/	H L	H/	

Inflectional stratum:

[[ke][bísé]]	[[óóko][bísé]]	concatenation
H'L H/	H L H/	
kebísé	[óókobísé]	BE and output

The HL melody also accounts for subjunctive behavior with object prefixes.

(79) Subjunctive: object prefixes (*óétá* 'hit', *óká* 'hear', 3s and 3p subjects)

3s:1s	á-mo-óété	3s:1p	á-so-óété
3s:2s	á-ko-óété	3s:2p	á-no-óété
3s:3s	á-m-óete	3s:3p	é-óete
3p:1s	óá-mo-óké	3s:1p	óá-so-óké
3p:2s	óá-ko-óké	3p:2p	óá-no-óké
3p:3s	óá-móké	3p:3p	óé-oke or óéoke ³⁹

The following observations can be made regarding the preceding table:

- i) All the forms with first and second person object prefixes have an invariable HL melody. In the case of the third-person-plural object forms, apparently the high tone of the third-person-plural object is

³⁹See Thomas (to appear) for a description of optional 3p object [6] insertion before vowel-initial stems.

- combined with that of a high-tone stem by OCP, then undergoes downstep.
- ii) In the case of the third person singular prefix before any consonant-initial root, downstep occurs on the stem. If the initial consonant of the root is a voiced eggressive obstruent, then the nasal is part of the onset, the autosegmental low tones of the subjunctive and the object may not link, and downstep may apply. If the initial consonant of the root is either voiceless or implosive, then the HL constraint (28) applies, the H of the subjunctive spreads to the nasal, and the autosegmental L of the subjunctive cannot link until downstep applies.
 - iii) There is also the case of the vowel-initial stem when concatenated with the third-person-singular object. As shown before for the perfective and imperfective, the nasal acts as a depressor consonant on the first vowel of a class II stem, linking a low tone to it. This low tone then prevents the triggering of downstep.

Not shown is an example of a class I stem such as *bebé* 'praise:subjunctive'. Here, the stem remains invariable when preceded by a third-person-plural object prefix: *bébebé* 'they praised (them)'. In this case, no rules are provided whereby the floating L of the subjunctive or the floating H of the third-person-plural object may link to anything.⁴⁰

5 Phonological phrase formation

Up until this stage I have only exhibited the four tones that can result from lexical derivation: H, L, rise, and (rarely) fall. In the post-lexical stratum, new tones appear that result from the concatenation of words and the construction of either declarative or interrogative phrases. These tones include a mid tone, rises to a mid tone, and a distinction between a declarative-final flat low tone and a tone that falls off.

I begin by demonstrating declarative downdrift as it occurs within the verb and contrast it with interrogative intonation. Then I show cases of downstep in the verb phrase, and show where downstep has a distinct surface manifestation in contrast to downdrift. Then, I show how

⁴⁰In fact, the third-person-plural object has no distinct surface realization in the subjunctive where there is only one single-syllable verb prefix. It is always homophonous with the corresponding objectless form.

downstep works in associative and oblique phrases. Finally, I look at instances of falling contours in Komo.

5.1 The verb phrase

5.1.1 Downdrift

Downdrift occurs when two high tones are separated by a low tone, where all three tones are linked to distinct vowels. The result in the case of Komo is a mid tone where the second high tone should be. Also in the case of Komo, downdrift only occurs in declarative phrases.

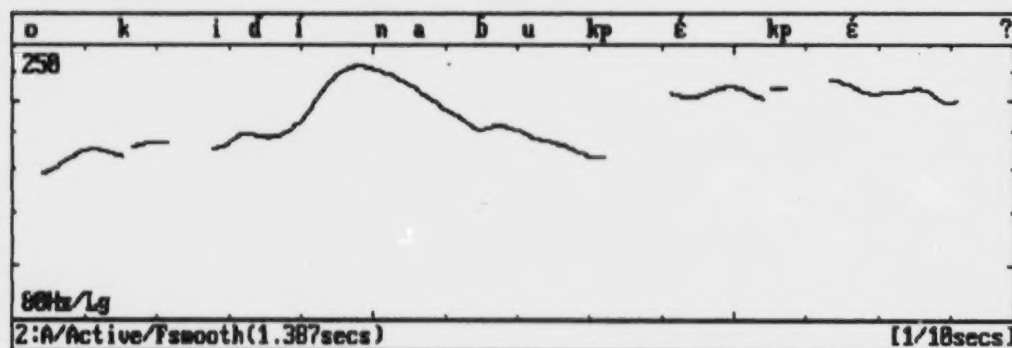
In the next table, the column entitled 'whistled melody' gives the tones whistled by a Komo speaker when asked to say the form under study, then whistle the tonal melody. Note that the middle low tones in the declarative phrase each have a slight trail off or offglide.

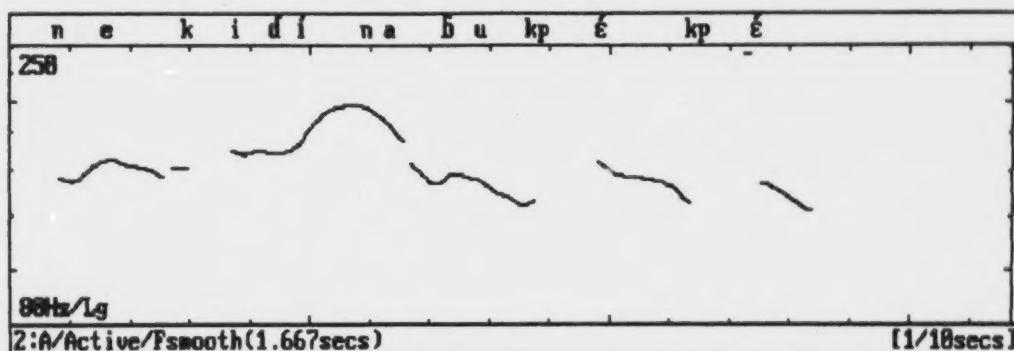
(80) Downdrift (*bédá* 'take')

<u>form</u>	<u>whistled melody</u>	<u>gloss</u>
<i>okidí na buképéké?</i>	[--^--^--]	'Have you come with strength?'
<i>nekidí na buképéké</i>	[--^--^--]	'I have come with strength.'

From the whistle test, clearly the final high tone which did not vary in the interrogative has been downstepped in the declarative. Instrumental analysis using CECIL (SIL 1989) basically confirms the whistle test.

(81) Instrumental analysis of (80)

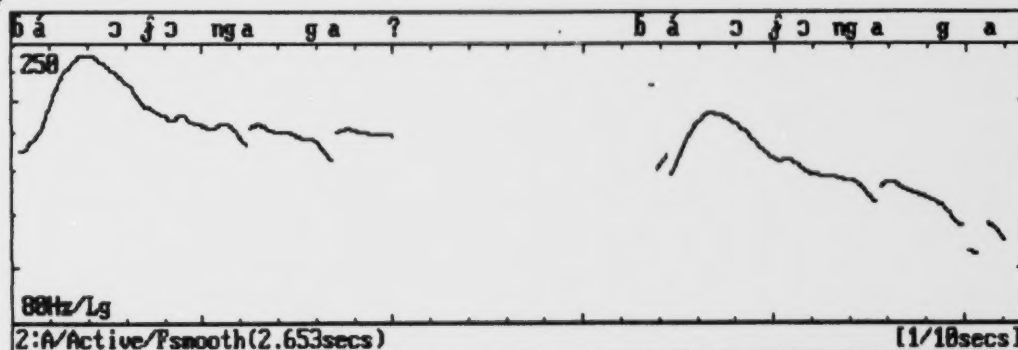




In the instrumental analysis of the declarative phrase, the final high tone looks like the final low tone. A whistler, however, gives the final high tone a higher pitch than the preceding low tone. Also, the high tones both in the interrogative and in the declarative are whistled with flat pitches. The low tones are each given an offglide in the declarative as shown in (80).

In fact, in declaratives, each one in a sequence of final low tones has a rather steep falling contour. The next intonation analysis compares the interrogative and declarative intonations of a phrase having a sequence of final low tones. Note that the low tones on the left-side pattern are relatively level, beginning with the same pitch, whereas the tones in the right-side pattern begin with successively lower tones and have relatively steep offglides. A Komo speaker whistles the relatively flat low tones with flat tones: [—]; he (unfortunately, I had to leave before I could elicit from a 'she') whistles the low tones on the right side of the figure with offglides [—].

(82) Sequence of final low tones in *báɔŋgaga* 'they are discussing', interrogative on left, declarative on right⁴¹



So far, I have shown the existence of four post-lexical level tones. Pulleyblank (1986) and Snider (to appear) take up Yip's (1980) proposal for a hierarchical system of two tonal features, [upper] and [raised] which form four possible combinations, each corresponding to a possible level tone. Thus, Pulleyblank charts these four tones, and I believe that they are realized in Komo as follows:

(83) Tonal feature combinations and Komo realizations

<u>pitch</u>	<u>register</u>	<u>pitch level</u>	<u>Komo realization</u>
+upper	+raised	H	high
	-raised	HM	mid
-upper	+raised	M	flat-low
	-raised	L	flat-low or low offglide

Henceforth in illustrations and derivations, I refer to positive and negative values of [upper] with the uppercase letters H and L, respectively. I refer to positive and

⁴¹Where two vowels are adjacent without an intervening consonant, a native speaker whistles a high-low sequence as a continuous contour. Unfortunately, I cannot easily represent this in print, and show such contours with two flat tones representing the end points of the contour.

negative values of [raised] with lower case letters h and l, respectively.⁴²

Using [upper] and [raised] features to represent Komo surface tone, it becomes possible to account for the phenomena in (80). First, I note that interrogatives have only two tones possible: high and flat-low. I account for this by positing that there is only one value of [raised] used in interrogatives: [+raised]. From this arises a rule:

(84) Interrogative intonation (post-lexical stratum)

II. [+raised]
III. interrogative

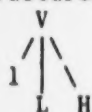
Graphically,

$$\begin{array}{ccc} V & \text{-->} & V \\ \cdot & & \cdot \\ \downarrow & & \downarrow \\ \text{int} & & h \end{array} \quad \text{tonal node}^{43}$$

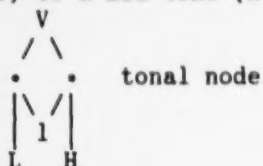
In prose: insert the register feature [+raised] in an interrogative phrase where there is a free vowel.

⁴²This follows the system used in Snider (to appear).

⁴³Up until now I have been informal and have not referred to tones as being linked to a vowel via a tonal node. This notation now becomes necessary in post-lexical derivation in order to avoid having to interpret structures representing contour tones such as:



Rather, I represent the preceding rise to mid contour as the linking of two different *tonal* nodes to the same vowel. This then clearly states the two end points of such a contour tone as consisting of a rise from a low tone {L + l} to a mid tone {H + l}:

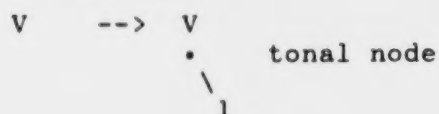


Next, I assign default values for [raised] elsewhere:

(85) Default [raised] (post-lexical stratum)

II. [-raised]

Graphically,



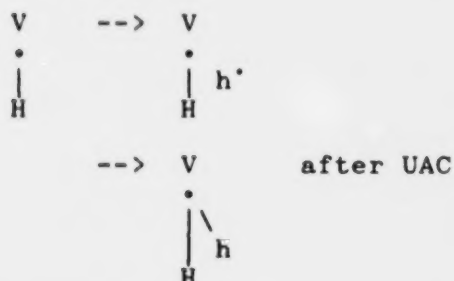
In prose: insert the default feature [-raised] wherever there is a free vowel.

(86) Redundant [raised] (context = H) (post-lexical stratum)

II. [+raised]

III. [+upper]

Graphically,



In prose: insert the feature [+raised] to a tonal node to which the feature [+upper] is already linked.

Finally, I arrive at a rule of downdrift. What this rule says is that a [-raised] spreads pervasively through a declarative phrase from its first occurrence after a [+raised].

(87) Downdrift (post-lexical stratum)

I. c. structure

d. (left to right)def

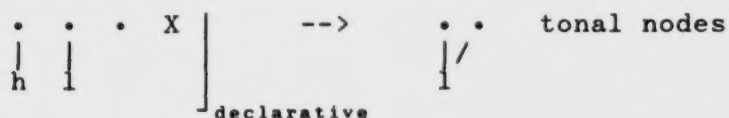
II. [-raised]

III. a. declarative final

b. (linked)default

c. [+raised] _____

Graphically,



In prose: insert structure from the feature [-raised] occurring after the leftmost feature [+raised] to any vowel on the right. If that vowel is previously linked to [+raised], then that feature is delinked, because (apparently) well-formedness conditions prevent two values of [raised] from being linked to the same tonal node.

Such a rule is disjunctive with both rules of default [raised] (85-86), since it applies to a subset of structures that would trigger the default rules. It therefore must apply exclusively before either default rule.

Note that I made the graphic representation using tonal nodes. This is because the two nodes could be connected to the same vowel. In other words, I am making the prediction that downdrift applies to rising contours as well as to level high tones. This is indeed the case, as shown below, where in a declarative context, the end point of the rising contour becomes a mid tone as a result of downdrift.

(88) Declarative intonation compared with interrogative intonation

[- ˩ - ˨]

ḡá-ǒ-kónda.

3p-ptp:3p-want:impf

'They want them.'

[- ˩ - ˨]

ḡá-ǒ-kónda?

(same gloss)

'Do they want them?'

5.1.2 Verb-object downstep

Post-lexical downstep occurs between verb and object in the context of declarative phrases.

(89) Downstep in the verb phrase (*bédá* 'take')⁴⁴

[- - - ~]	[- - - -]
<i>bá-bédí kasa.</i>	<i>bá-bédí kásá?</i>
3p-take leaf	3p-take leaf
'They took the paper.'	'They took the paper?'

In order to formalize, I must first note that the high tone undergoing downstep must be the ultimate tone in a declarative phrase. In the examples, different words are put in frames of *bákábí...* 'they looked for [something inanimate]', and *bánkábí* 'they looked for [something animate]'.).

(90) Declarative-final downstep

<u>object</u>	<u>gloss</u>	<u>in frame</u>	<u>surface realization</u>
<i>kásá</i>	'paper, leaf'	<i>bákábí kasa</i>	[--- ~]
<i>jó</i>	'panier'	<i>bákábí jó</i>	[--- ~]
<i>sékéké</i>	'bird'	<i>bánkábí sekeke</i>	[--- ---]
<i>cíko</i>	'field'	<i>bákábí cíko</i>	[--- ~] *[--- ~]
<i>kóngóiɓa</i>	'spider'	<i>bánkábí kóngóiɓa</i>	[--- ---] *[--- ---]
<i>báumángá</i>	'crocodile'	<i>bánkábí báumángá</i>	[--- ---] *[--- ---]

Downstep works in the imperfective as well as in the perfective if the final syllable of the verb stem is high, such as is the case with a monosyllabic stem from tonal class II. In the following examples, *tá* is a monosyllabic stem; the low tone of the imperfective cannot associate to the stem. *úá*, though bisyllabic, is subject to the HL constraint (28) and is also a downstep trigger. In the following examples *jémbá* and *kókó* both have underlying HH melodies.

⁴⁴See the appendix for instrumental data on subjunctive, verb-object, and associative downstep.

(91) Object downstep in the imperfective

ḡá-o-n-tá jemba
3p-ptp-3s-hunt monkey

'they are hunting a monkey'

ḡá-o-m-bédá jémbá
3p-ptp-3s-take:impf monkey

'they are taking a monkey'

ḡá-u-úá koko
3p-ptp-paddle:impf canoe

'they are paddling a canoe'

ḡá-o-bédá kókó
3p-ptp-take:impf canoe

'they are taking a canoe'

I now formalize declarative downstep, proposing that it involves the insertion of [-upper] between adjacent [+upper] features at the end of a declarative phrase. Downstep (74) then operates on the result.

(92) Declarative L insertion (post-lexical stratum)

II. [-upper]

III. - declarative

[+upper] — [+upper]

Graphically, where the context is declarative,

V V V	V V V	-->	V V V	V V V	
\ /	\ /		\ /	\ /	by the
[+upper][+upper]			[+upper][-upper][+upper]		rule
		-->	V V V	V V V	
			\ /		downstep
			[+upper][-upper]		
			V V V	V V V	
			\ /	\ /	UAC,
			[+upper][-upper]		spreading

(93) Derivation of *ḡákáḡí kasa* 'they looked for a paper/leaf'

[ḡákáḡí]	[kásá]	Input from lexical derivation
H/ /	H/	
[[ḡákáḡí][kásá]]	Concatenation	
H/ /	H/	
[[ḡákáḡí][kásá]]	Declarative L insertion (92)	
H/ / L' H/		
[[ḡákáḡí][kásá]]	Downstep (74)	
H/ / L'		
[[ḡákáḡí][kasa]]	UAC, Default L insertion,	
H/ /	L/	resolution of OCP, [raised] rules
h/ /	l/	
[- - - -]	Output intonation	

5.2 Associative and oblique phrases

5.2.1 Associative and oblique downstep

This section examines downstep in constructions such as noun + noun, preposition + noun, gerund + noun. In reality they are mostly, if not all, instances of the same construction in Komo, namely, substantive + associative *á/a* + noun. As to the choice of tone for the associative, it seems to be toneless taking the same tone as the final tone of the head substantive, if that substantive is an adverb. Otherwise, it takes a high tone (e.g., in 'X of Y' constructions). Here is a partial list of such constructions.

(94) Associative and oblique constructions

<u>frame</u>	<u>gloss</u>
<i>X á Y</i>	'X of Y' (inalienable possession)
<i>X ndéá Y</i>	'X of Y' (alienable possession)
<i>[verb] á X</i>	[gerund] 'of X, his/her' [verb]ing
<i>bā(t)-X</i>	'behind X' (space) or a time distal from ego after or before X ⁴⁵
<i>gú á X</i>	'above X, on X'
<i>ká X</i>	'for X, on X, at X'
<i>kángá</i>	'without X'

⁴⁵The [t] is realized before a vowel-initial noun.

<i>kúsi a X</i>	'below X'
<i>mbenɔ á X</i>	'the time of X' (when)
<i>mosá X</i>	'in front of X' (space) or 'before X' (time)
<i>mbúsa a X</i>	'behind X' (space) or 'after X' (time)
<i>ngɔngɔ á X</i>	'behind the back of X'
<i>nyɔngɔ á X</i>	'because of X' (literally, 'affair of X')
<i>sósɔɔɛ a X</i>	'among X'

<u>examples</u>	<u>gloss</u>
<i>mɔ á nkpa</i>	'head of a person'
<i>kínga á miki</i>	'bicycle of the child'
<i>támhá á miki</i>	'the walking of the child'
<i>bá-mama</i>	'after tomorrow'
<i>bá-poso á mosá</i>	'before last week'
<i>bát-édu</i>	'behind the house'
<i>gú á ntando</i>	'on the bridge'
<i>kúsi a mamba</i>	'below the hill'
<i>mbenɔ á oíɔ</i>	'the time of weeping'
<i>mosá mē</i>	'in front of (on the far side of) the tree'
<i>mbúsa a maséjé</i>	'after the feast'
<i>nyɔngɔ á ganjá</i>	'affair of circumcision'
<i>sósɔɔɛ a bakpá</i>	'among the people'

All of the preceding constructions usually trigger downstep on the adjunct noun if it contains a branching initial high tone⁴⁶ or if it is a monosyllabic word. Below is a paradigm of all bisyllabic noun melodies, followed by some multisyllabic examples.

(95) Associative phrase downstep (*kángá* 'without')

<u>lexeme</u>	<u>gloss</u>	<u>frame: kángá</u>	<u>analysis</u>
monosyllabic forms:			
<i>jɔ</i>	'basket'	<i>kángá jɔ</i>	H --> [_]
<i>ba</i>	'hut'	<i>kángá ba</i>	L --> [_]

⁴⁶I take the *adjunct* noun to be the noun on the right and the *head* to be the preposition or nominal on the left.

Some speakers do not have the requirement that the high tone be branching. That is, they downstep any high tone. This may be a language change in process.

bisyllabic forms:

<i>kásá</i>	'leaf'	<i>kángá kasa</i>	HH	--> [_ _]
<i>cídó</i>	'jigger'	<i>kángá cídó</i>		
<i>óóki</i>	'honey'	<i>kángá óóki</i>	HL	--> [^ _]
<i>kánga</i>	'bird'	<i>kángá kánga</i>		
<i>mení</i>	'proverb'	<i>kángá mení</i>	LH	--> [_ -]
<i>pecá</i>	'winnow'	<i>kángá pecá</i>		
<i>bibi</i>	'charcoal'	<i>kángá bibi</i>	LL	--> [_ _]
<i>ɓamba</i>	'lice'	<i>kángá ɓamba</i>		

multisyllabic forms:⁴⁷

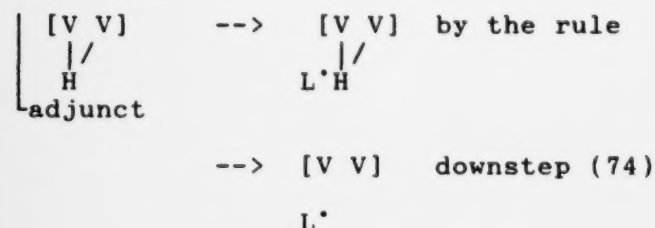
<i>sékéke</i>	'bird'	<i>kángá sekeke</i>	HHH	--> [_ _ _]
<i>ɓúámbo</i>	'another'	<i>kángá ɓuambo</i>	HHL	--> [_ _ _]
<i>kóngóiɓa</i>	'spider'	<i>kángá kongoiɓa</i>	HHLL	--> [_ _ _ _]
<i>ɓáumángá</i>	'crocodile'	<i>kángá ɓáumángá</i>	HLHH	--> [^ _ _ _]
<i>sídóó</i>	'sawyer'	<i>kángá sídóó</i>	HLH	--> [^ _ -]

These forms resemble more the subjunctive in the type of downstep taking place than declarative-final subject + object. I conclude that downstep in the oblique or associative phrase takes place lexically. My proposal is that the mechanism for associative or oblique phrase downstep involves the insertion of a low-tone prefix, just as it does with subjunctive and verb-phrase downstep. I call the process adjunct formation.

(96) Adjunct formation (inflectional stratum)

- II. [-upper]
 III. - nominal adjunct
 - [____ [+upper]]
 - target: branching or [____ [+upper]]

Graphically,



⁴⁷Multisyllabic forms not containing a low-tone, noun-class prefix are rare. I am only showing forms of interest: those containing an initial high tone.

```
--> [V V]    UAC, Default L insertion, OCP
      |/
      L
```

(97) Derivation of *kángá kasa* 'without paper/leaves'

[kángá] [kásá] Input from lexicon
H / H/

[kángá] [kásá] Nominal adjunct formation (96)
H / L·H/

[kángá] [kasa] Downstep (74)
H / L^{*}

[kángá] [kasa] UAC, Default L insertion, OCP
H / L/ resolution

Post-lexical:

[[kángá][kasa]] Concatenation
H / L/

[[kángá][kasa]] [raised] default rules (85, 86)

H /	L/
h /	l/

[- - -] output intonation

I next note that the rule for adjunct formation (96) as stated is independent of the tone on the associative marker. This is indeed the case; identical results obtain with a frame like *kúsi* a... 'beneath the...'.
 10

(98) Adjunct formation, low-tone associative marker

lexeme gloss frame: kúsi a analysis

monosyllabic forms:

<i>jɔ</i>	'basket'	<i>kúsi a jɔ</i>	H	--> [_]
<i>ba</i>	'hut'	<i>kúsi a ba</i>	L	--> [_]

bisyllabic forms:

<i>kásá</i>	'leaf'	<i>kúsi a kasa</i>	HH	-->	[<u>-</u>]
<i>óóki</i>	'honey'	<i>kúsi a óóki</i>	HL	-->	[<u>-</u>]
<i>pecá</i>	'winnow'	<i>kúsi a pecá</i>	LH	-->	[<u>-</u>]
<i>bibi</i>	'charcoal'	<i>kúsi a bibi</i>	LL	-->	[<u>-</u>]

This lends credence to an analysis that places adjunct formation in a lexical stratum. If adjunct formation were dependent on the tone on the associative *á* or *a*, one would expect adjunct formation to take place only upon concatenation with the high-toned associative. However, concatenation of two words, or even a (p)article and a word, would be expected to occur post-lexically (Mohanani 1986).

5.2.2 Elision, falling contours

Elision sometimes occurs upon concatenation of the associative and the adjunct, or of a preposition and an adjunct, if the adjunct begins with a vowel.

(99) Elision in associative and oblique phrases (*kángá* 'without')

<u>adjunct</u> ⁴⁸	<u>kángá + adjunct</u>	<u>gloss</u>
<i>éndú</i>	<i>káng'éndu</i>	'without a house'
<i>élé</i>	<i>káng'эле</i>	'without a dog bell'
<i>éso</i>	<i>káng'эso</i>	'without a voice'
<i>óma</i>	<i>káng'óma</i>	'without a place'
<i>eká</i>	<i>káng'eká</i>	'without charcoal'
<i>egá</i>	<i>káng'eká</i>	'without epilepsy'
<i>eka</i>	<i>káng'éka</i>	'without a bed'
<i>edo</i>	<i>káng'édo</i>	'without a net'

Of interest is elision with the associative *á*. In this case, the non-tonal content of the *á* entirely disappears. Only the high tone remains on the first syllable of the adjunct.

(100) Elision with *nongo á* 'because of'

<u>adjunct</u>	<u>nongo + adjunct</u>	<u>gloss</u>
<i>éndú</i>	<i>nongo éndu</i>	'because of the house'
<i>éso</i>	<i>nongo éso</i>	'because of the voice'
<i>eká</i>	<i>nongo êká</i>	'because of the charcoal'
<i>eka</i>	<i>nongo éka</i>	'because of the bed'

First, I note that H retrolinking does not take place, deriving something like **nongó endu* in the first line above. I believe that this is due to the fact that adjunct phrase formation takes place before the adjunct is concatenated with the head noun. So the floating H of the associative has

⁴⁸Only bisyllabic words can occur in this frame.

nowhere to link except rightwards at the stage of the derivation where it is encountered.

To account for these data, I propose that adjunct downstep first takes place in lexical derivation as indicated by the rule of nominal adjunct formation. Then, head and adjunct are concatenated and elision takes place. What is elided by the elision is the last vowel of the preposition or the [a] of the associative. Also, any previous lines of association of tone to the first vowel of the adjunct are deleted (the tone itself is not, as is seen in *nɔŋɔ éká*). Next the UAC links the high tone of the associative to the first vowel of the adjunct. An additional tone rule is then needed.

(101) Elision, tonal part (post-lexical stratum)⁴⁹

- I. a. delete
 - c. structure
 - II. tonal node
 - III. - nominal adjunct
- target: [V (CV)ɔ]
- |

—

|

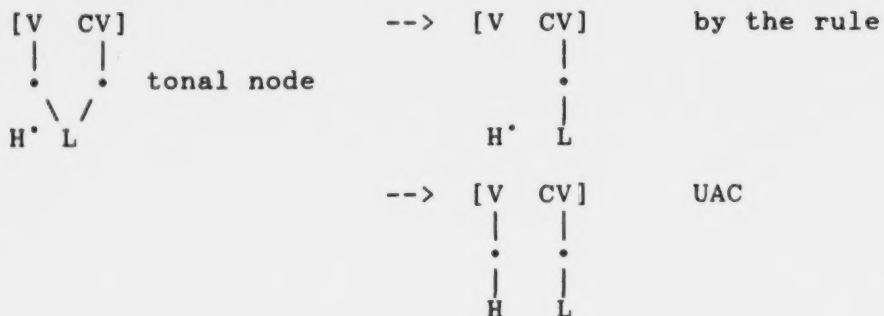
[any tone]
- tonal node

⁴⁹One might propose that this rule is a mirror image of contour expansion (57) in combination with a rule of forelinking. For example:

<i>nɔŋɔ á eka</i>	'because of the bed'
L L H L L	
<i>nɔŋɔ eka</i>	elision
L L H' L L	
<i>nɔŋɔ eka</i>	forelinking
L L HL L	
<i>nɔŋɔ éka</i>	mirrored contour expansion
L L H L	

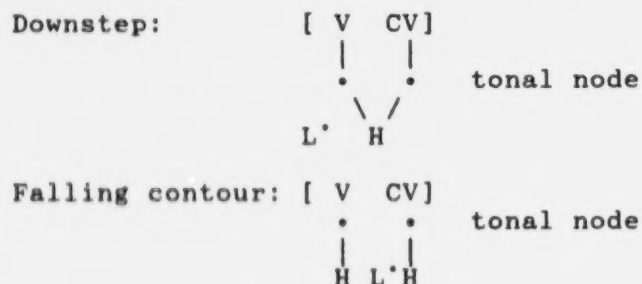
Unfortunately, (57) takes place between immediately adjacent vowels, and cannot apply here. Otherwise, a word like *bákojɔŋaga* 'they are conversing there' would be expected to surface as **bákojɔŋa*. Furthermore, *káŋg éka* 'without the bed' would be expected to surface in non-mirrored contour expansion as **káŋg eka*.

Graphically, adding an associative H, a single CV and a low tone for expository clarity,



This takes care of the initial melodies HH, HL, and LL. There remains the problem of the falling contour instead of downstep where the initial melody was LH. To account for this, I first note that the target criteria for downstep is not met in this case.

(102) Comparison of downstep and triggering environment for a falling contour, bisyllabic case

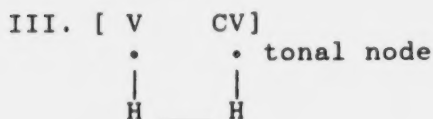


In the case of downstep, the [-upper] autosegment is on the left side of the brackets. In the case of the triggering environment for a falling contour, the low-tone autosegment falls between two high tones whose anchors are within the same set of brackets. Thus, it is possible to state a rule of falling contour creation having a target distinct from that of downstep creation.

(103) L retrolinking (post-lexical stratum)⁵⁰

- I. c. structure
d. opposite direction (left to right)

II. [-upper]



Graphically,



Finally, it is of interest to see what happens when the associative has a low tone.

(104) Elision with *kúsi* a 'beneath'

<u>adjunct</u>	<u><i>kúsi</i> + adjunct</u>	<u>gloss</u>
<i>éndú</i>	<i>kúsi endu</i>	'beneath the house'
<i>íḃo</i>	<i>kúsi íḃo</i>	'beneath the nest'
<i>eká</i>	<i>kúsi eká</i>	'beneath the charcoal'
<i>edó</i>	<i>kúsi edó</i>	'beneath the net'

Once again, nominal adjunct formation applies regardless of the tone of the associative marker, deriving an LL melody for *éndú*. If the same process of deleting the tonal node associated with the initial vowel of the adjunct is assumed, then the only problematic form is *kúsi íḃo*. In this case the floating L' links to the first vowel of *íḃo*, the floating H' links by retrolinking, and contour expansion applies to delete the L, as in the following derivation.

⁵⁰L retrolinking cannot be combined with H retrolinking because the trigger/target conditions differ:

L H'	for H retrolinking
H L' H	for L retrolinking

(105) Derivation 1: *kúsi íbɔ* 'beneath the nest'*Inflectional stratum:*

[íbɔ]	input to adjunct formation
H L	

[íbɔ]	adjunct formation
L·H L	

Post-lexical:

[[kúsi][a][íbɔ]]	oblique phrase concatenation
/	
H L L·H L	

[[kúsi][íbɔ]]	elision
H L L·H·L	

[[kúsi][íbɔ]]	UAC
/	
H L L H·L	

[[kúsi][íbɔ]]	H retrolinking
/	
H L L H L	

[[kúsi][íbɔ]]	contour expansion, ((57) $\alpha = -$)
H L H L	

[kúsi íbɔ]	BE, output
H L H L	

(106) Derivation 2: *ɲɔŋɔ éndu* 'because of the house'*Inflectional stratum:*

[éndú]	input from lexical insertion
H /	

[éndú]	adjunct formation (96)
L·H /	

[endu]	downstep (74)
L·	

[endu] L /	UAC, default L insertion, OCP resolution
<i>Post-lexical:</i>	
[[nɔŋɡɔ][[á][endu]]] L / H L /	concatenation
[[nɔŋɡɔ á][endu]] / / L H L	BE
[[nɔŋɡɔ][endu]] / H· L L	elision (101)
[[nɔŋɡɔ][édu]] / L H L	UAC and output

(107) Derivation 3: *nɔŋɡɔ êká* 'because of the charcoal'

Inflectional stratum:

[eká] L H	input from lexical derivation
[eká] L· L H	adjunct formation
[eká] L H	OCP

Post-lexical:

[[nɔŋɡɔ][[á][eká]]] L / H L H	concatenation
[[nɔŋɡɔ][eká]] / L H·L·H	elision
[[nɔŋɡɔ][éká]] / / L H L·H	UAC
[[nɔŋɡɔ][êká]] / / L H L H	L retrolinking (103) and output

5.3 More falling contours

I have shown two contexts where a falling contour tone is derived in Komo: the locative *k-* in imperfective constructions and in associative constructions where the adjunct noun has a lexical LH melody. In this section I display four more cases: monosyllabic class II and III verb stems with the perfective TAM, associative-linked possessives, associative-linked adjectivals, and incorporated adverbs.⁵¹

5.3.1 Monosyllabic, class II and III verb stems + perfective

Monosyllabic class II and class III verb stems (those with a lexical high tone) display a falling tone on the first (subject prefix) syllable if: (1) the stem is in the perfective; (2) the first syllable would ordinarily be linked to a high tone; (3) the verb is declarative-phrase final.

(108) Falling contours: verbs

Class II:

ḡá-jú?
3p-appear:pf

'did they appear?'

dó-í?
dp:2s-eat:pf

'did you eat?'

ḡá-jú.
3p-appear:pf

'they appeared'

dó-í.
dp:2s-eat:pf

'you ate'

Class III:

ḡá-gú?
3p-fall:pf

'did they fall?'

dó-jí?
2s-return:pf

'did they return?'

ḡá-gú.
3p-fall:pf

'they fell'

dó-jí.
2s-return:pf

'they returned'

⁵¹Some of the Bantu-specific parts of speech terminology have been borrowed from Bennett (1986).

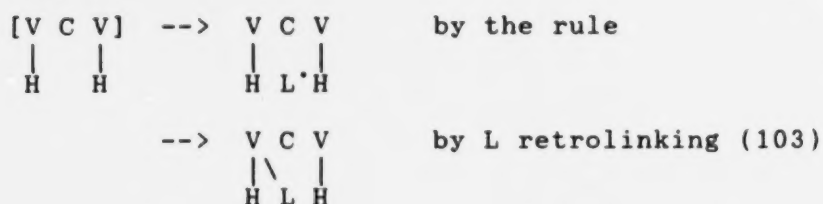
The rule that accounts for these forms derives an environment that triggers the L retrolinking already described in the section above on elision.

(109) L insertion

- II. [-upper]
 III. - declarative
 - trigger: (linked)

 [[+upper] ____ [+upper]]

Graphically,



Apparently, this rule functions before the OCP creates a branching H tone that is linked to both stem and prefix.

(110) Derivation of *ḡá-gú* 'they fell'

Inflectional stratum:

$\begin{array}{cc} [\dot{g}á] & [\dot{g}ú] \\ & \\ H & H \end{array}$	output of the derivational stratum
---	------------------------------------

$\begin{array}{cc} [[\dot{g}á][\dot{g}ú]] \\ & \\ H & H \end{array}$	concatenation
--	---------------

$\begin{array}{c} [\dot{g}á\dot{g}ú] \\ & \\ H & H \end{array}$	BE
---	----

Post-lexical:

$\begin{array}{c} [\dot{g}á \dot{g}ú]_{\text{declarative}} \\ & \\ H & L & H \end{array}$	L insertion (109)
---	-------------------

$\begin{array}{c} [\dot{g}á \dot{g}ú] \\ & \backslash & \\ H & L & H \end{array}$	L retrolinking (103) (output)
---	----------------------------------

5.3.2 Digression: extratonicity

The problem remains that L insertion does not occur in perfectives with multisyllabic stems. Cases like *ḡá-bédí* 'they took' would come to mind. It turns out, however, that such cases do not occur in the declarative-final position, due to a phenomenon known as extratonicity.

Where a verb in the perfective or the imperfective occurs in a declarative-final position, the final syllable of a stem with two or more syllables is *extratonic*. *Extratonic* is defined in Pulleyblank (1986:198) to be a "...constituent at the edge of a tonal domain [that is] 'invisible' for the purposes of tonal rules." The only two 'rules' that can apply to an extratonic syllable are the UAC and default tone rules (L and l).

The rule that extratonicity blocks in Komo is H spreading. In the following table, I give various instances when H spreading is blocked. The first case is particularly interesting: where constraint (28) on HL sequences would normally prevent an HL melody from linking to two vowels not separated by a consonant, extratonicity prevents H spreading to the final vowel during stem derivation. Post-lexically, the constraint no longer applies and so a final low tone is derived.

I note that the declarative-final low tones in the following examples, when whistled, have offglides that are indistinguishable from low tones that have not varied from their lexical values.

(111) H spreading and extratonicity

Class II imperfective, -VV ending⁵²

ḡá-o-kúá?
3p-ptp-die:impf

'are they dying?'

ḡá-o-kúá.
3p-ptp-die:impf

'they are dying.'

⁵²Compare: *ḡáokúá ḡobu*. 'They are all dying.' (*ḡóbú* 'all'), where extratonicity does not operate and H spreading applies in the context of the HL constraint.

Class I perfective, 3 or more stem syllables

<i>ḡá-bikísí?</i>	<i>ḡá-bikísí.</i>
3p-come:cs:pf	3p-come:cs:pf
'did they have it come?'	'they had it come.'

Class Ia perfective, 2 or more stem syllables

<i>ḡá-bětú?</i>	<i>ḡá-bētu.</i>
dp:ls-limp:pf	dp:ls-limp:pf
'did s/he limp?'	's/he limped'

Class II perfective, 2 or more syllables

<i>ḡo-bédí?</i>	<i>ḡo-bédi.</i>
2p-take:pf	2p-take:pf
'did you take it?'	'you took it.'

Class III perfective, 2 or more syllables

<i>ḡō-gúsi?</i>	<i>ḡō-gúsi.</i>
2p:3p-fall:cs:pf	2p:3p-fall:cs:pf
'did you initiate them?'	'you initiated them'

(112) Derivation of *o-bédísi* 'you had it taken'
(declarative-final)

Derivational stratum:

[o] [bédísi]. H'H' \ ex	Non-tonal lexical input
[o] [bédísi]. H/ \ ex	UAC, resolution of OCP
[o] [bédísi]. L H/ \ ex	Default L insertion (20)

Inflectional stratum:

[[o][bédísi]].
 L H/ \
 ex

Concatenation

[obédísi].
 L H/ \
 ex

BE

Post-lexical stratum:

[obédísi].
 L H/ |
 L

Default L insertion

A problem remains with two-syllable class II stems which are assigned an H as a result of their stem class and an H as a result of TAM marking. Evidently, OCP deletion of one of the H's must occur before UAC linking. Otherwise, with a stem like *béđi* 'take:pf:declarative final', **béđi* would be the expected output of a derivation.

5.3.3 Associative-linked possessives

The inalienable possessive is formed by concatenating the associative *á/a* to one of a set of pronoun suffixes. The alienable possessive is formed by concatenating *ndéá* or its contractions *né* or *ná*, depending on the speaker's dialect, to one of the same set of pronoun suffixes as in (115ff).⁵³

(113) Pronoun suffixes

1s: -mɔ/-ni⁵⁴
 2s: -kɔ
 3s: -ké

1p: -sú
 2p: -nú
 3p: -bó

In the table below, the second element of each pair has declarative-final intonation, the first element has the intonation of any other position or of a question. Not shown

⁵³This is one of a very few dialectical variations that exist. Generally, *ndéá* is used in northern areas, *né* is used from Lubutu south, and *ná* is used in the extreme southeast. It is probable that the latter two forms are contractions of the first form. However, since this is the only such contraction existent in Komo, I do not attempt an analysis of it here (or elsewhere).

⁵⁴-mɔ is used for inalienable possession, -ni for alienable possession.

here are the effects of downdrift: the high tones in the second elements of the pairs are actually mid tones.

(114) Alienable possession

1s: áni/áni	1p: ású/ású
2s: áko/áko	2p: ánú/ánú
3s: áké/áké	3p: ábó/ábó

(115) Inalienable possession using *ndéá*

1s: ndéámó/ndéámó	1p: ndéású/ndéású
2s: ndéáko/ndéáko	2p: ndéánú/ndéánú
3s: ndéáké/ndéáké	3p: ndéábó/ndéábó

(116) Inalienable possession using *né*

1s: némo/némo	1p: nésú/nésú
2s: néko/néko	2p: nénú/nénú
3s: néké/néké	3p: nébó/nébó

(117) Inalienable possession using *ná*

1s: námo/námo	1p: nású/nású
2s: náko/náko	2p: nánú/nánú
3s: náké/náké	3p: nábó/nábó

Thus, regardless of dialect, a falling contour is obtained on the penultimate syllable when in the declarative-final position.

No new rules are needed if these forms are taken to be compounds of an associative or associative-like head and a pronoun adjunct.

(118) Proposed structures and derivations of possessive constructions using the third person singular pronoun (cf. (114) - (117))

Underlying:

[[á][ké]]	[[ndé á][ké]]	[[né][ké]]	[[ná][ké]]
H H	H / H	H H	H H

Declarative-final:

[áké]	[ndé áké]	[néké]	[náké]	BE
H H	H / H	H H	H H	

[á ké]	[ndé áké]	[né ké]	[ná ké]	L insertion
 HL'H	/ H L'H	 HL'H	 HL'H	
[â ké]	[ndé â ké]	[nê ké]	[nâ ké]	L retro- linking
\ H LH	/ H LH	\ H LH	\ H LH	

Elsewhere:

[áké]	[ndé áké]	[néké]	[náké]	BE
 H H	/ H H	 H H	 H H	
[áké]	[ndé áké]	[néké]	[náké]	Resolution of OCP
/ H	/ H	/ H	/ H	

5.3.4 Associative-linked adjectivals

All substantives in Komo that act like adjectives are actually compounds that begin with the associative á/a. Following is an exhaustive list from my dictionary data base. Singular animate nouns must be modified by a reduplicated form. If a reduplicated form modifies an inanimate noun, it acquires a superlative nuance. Non-reduplicated forms modify inanimate nouns and plural animate nouns. In the case of plural animate nouns, there is a nuance that is described at the end of the section.

In the following table, I have indicated intonation for reduplicated forms in a declarative-final context. Elsewhere, a falling contour would instead remain a high tone.⁵⁵

⁵⁵The declarative-final forms assume that the head noun ends in a low tone which I take to be more basic.

kéma ânjá.
thing good:declarative

'good thing.'

See below for the case when the head noun ends in a high tone.

(119) Associative-linked adjectivals

<u>base</u>	<u>unreduplicated</u>	<u>reduplicated</u>	<u>gloss</u>
áboá		áboboá	'little'
(none)		ábóðóboðó	'slimy'
ábú	ábú	ábúbú	'white'
(none)		ádede	'cold'
ádiá		(none)	'bitter'
áeke		áekeke	'sweet'
ágbede		ágbedegbede	'soft'
ágbíki		ágbíkigbiki	'bumpy'
ájede		(none)	'bad'
ájó	ájó	ájójo	'hot'
ákpé	ákpé	ákpékpé	'hard'
ágbae		ágbaegbae	'wide'
ángbí	ángbí	ángbíngbí	'short'
ángbó	ángó	ángbóngbó	'big'
ángbo		(none)	'another'
ánjá	ánjá	ánjánjá	'good'
nje		ánjenje	'red'
ápebe		ápébepebe	'fine'
áode		áodeode	'soft'
áolo		áoloolo	'lukewarm'
áphi	áphi	áphiphi	'black'
ási		ásisi	'many'
(none)		átete	'thick'

Adjectivals behave in a manner very similar to that of possessives. That is, declarative-finally, a low tone is inserted into a sequence of two high tones and a falling contour is derived. This is true both for base forms and for reduplicated forms where the second H is linked to two syllables.

(120) Derivations of adjectivals, base form and reduplicated form (ánjá, ánjánjá 'good')⁵⁶

Underlying forms:

[[á][njá]] [[á][njá njá]]
 | | | \ /
 H H H H

⁵⁶Due to a paucity of data, I make no analysis of reduplication, per se.

Declarative-final:

[ánjá]	[ánjá njá]	BE
	\ /	
H H	H H	
[ánjá]	[ánjá njá]	L insertion (109)
	\ /	
HL*H	H L* H	
[ánjá]	[ânjá njá]	L retrolinking (103)
\	\ \ /	
H LH	H L H	

Elsewhere:

[ánjá]	[ánjá njá]	BE
	\ /	
H H	H H	
[ánjá]	[ánjánjá]	Resolution of OCP
/	/ /	
H	H	

When an adjectival modifies a plural animate noun, the adjectival is unreduplicated, and the two substantives are separated by the infinitive of being *ɔ́á*.

(121) Plural animate noun + adjectival

<i>ɔ́a-kpá</i>	<i>ɔ́á ánjá?</i>	<i>ɔ́a-kpá</i>	<i>ɔ́á anjá.</i>
cl.2-person	be good	cl.2-person	be good
'are they good people?'		'they are good people/the good people'	

ɔ́a-níkí *ɔ́á ánje*
cl.2-child be red

'the red children/the children are red/are they red children?'

Ordinarily, one would expect a falling contour on the first vowel of the adjectival as happens in (120). Instead, there is a high tone on the infinitive of being, and a low tone on the first syllable of the adjectival. This in fact also occurs whenever a noun ending in a high tone precedes an adjectival.

(122) Noun before adjectival

<i>n-kpá</i>	<i>anjánjá</i>	<i>seko</i>	<i>ânjánjá</i>
cl.1-carve	assoc:good	chimpanzee	assoc:good
'a good person ⁵⁷ '		'a good chimpanzee'	

I take the forms where the head noun ends in a low tone to be more basic. The rule of contour expansion, which was already introduced in the section on 3p object prefixes, accounts for the anomalous forms.

(123) Contour expansion ((57) repeated) (inflectional stratum)

I. a. delete			
c. structure			
II. tonal node			
III. target:	V	V	tonal node
	•	•	
		—	
	[α-upper]	[α-upper]	[-α-upper]

(124) Derivation of *nkpá anjánjá* 'a good person', declarative final contextLexical stratum:

[[*nkpá*'] [[*á*][*njánjá*]]]. Lexical input
 H H H /

[[*nkpá*] [*ánjánjá*]]. BE
 H H H /

Post-lexical stratum:

[[*nkpá*] [*ánjánjá*]]. L insertion (109)
 H HL^{*}H /

[[*nkpá*] [*ânjánjá*]]. L retrolinking (103)
 | | \ | /
 H H LH

⁵⁷ *kpá* forms the root for both the verb 'carve' and nouns like *nkpá* 'person' and *kokpá* 'dignity'. In the glossing, I consider the noun to be a nominalization of the verb. Apparently, Komo cosmology considers the genesis of humanity to involve the carving of an image, which is really not too surprising, given the widespread traditional use of wooden (carven) masks in Komo culture.

[nkpá ânjáńjá].

$$\begin{array}{c} | \quad | \quad | \quad | \\ H \quad H \quad LH \quad / \end{array}$$

BE

[nkpá anjáńjá].

$$\begin{array}{c} | \quad | \quad | \quad | \\ HH \quad L \quad H \quad / \end{array}$$

Contour expansion

[nkpá anjáńjá].

$$\begin{array}{c} | \quad | \quad | \quad | \\ H \quad L \quad H \quad / \end{array}$$

OCP

[nkpá anjáńjá].

$$\begin{array}{c} | \quad | \quad | \quad | \\ H \quad L \quad H \quad / \end{array}$$

UAC and output

5.3.5 Incorporated adverbs

Certain adverbs can incorporate into verbs in the imperfective TAM.⁵⁸ In such cases, the last syllable of the subject complex dominates a falling tone if the first syllable of the incorporated adverb dominates a low tone.

(125) Incorporated adverbs

ḡó-o-ga

2p:nar-ptp-go:impf

'and (=nar) you went
(no adverb)'

â-gotó-o-ga

3s:nar-again-ptp-go:impf

'and s/he went again'

ḡó-ko-ga

2p:nar-loc:ptp-go:impf

'and you went there'

ḡó-tó-o-ga

2p:nar-only-ptp-go:impf

'and you were only going'

ḡó-gǎké-o-ga

2p:nar-however-ptp-go:impf

'and you went, however'

ḡó-ḡótó-o-ga

2p:nar-still-ptp-go:impf

'and you were still going'

ḡó-ndíu-o-ga

2p:nar-anyway-ptp-go:impf

'and you went anyway'

⁵⁸Such adverbs are inserted post-verbally in perfectives.

bó-jé-o-ga

2p:nar-indeed-ptp-go:impf

'and you indeed went'

bó-jétó-o-ga

2p:nar-even-ptp-go:impf

'and you even still were
going'

bó-ǫǫ-o-ga

2p:nar-first-ptp-go:impf

'and you should then go'

Indeed, there need not be any verbal morphology present to derive a falling contour.

(126) Adverb after subject copula

bá oáni

3p here

'they are here'

bâ to oáni

3p only here

'they are only here'

bâ gotó oáni

3p again here

'they are again here'

bâ gǎké oáni

3p however here

'they are here, however'

Apparently, the adverbs with low tones on their initial syllables act as depressors of the subject-prefix tone. I state this as a rule.

(127) Subject prefix depression by incorporated adverb
(post-lexical stratum)

- I. c. structure
- d. opposite direction

II. [-upper]

III. [subject[adverb]]⁵⁹

Graphically,

[(C)V[CV(CV)]adverb]verb
| |
H L

--> [(C)V [CV(CV)]]
| \ /
H L

⁵⁹The exact mechanism of adverb incorporation, and therefore the bracketing exhibited, is just a hypothesis. Other analyses may be possible.

(128) Derivation of *ʃʃ-tʃ-oga* 'you are only going'

Post lexical:

[ʃʃoga] Input from lexical strata after BE
HL/

[ʃʃ[tʃ]oga] Adverb incorporation
| | |/
H L L

[ʃʃ [tʃ]oga] (127)
| \ / |/
H L L

[ʃʃ tʃoga] BE and resolution of OCP, output
| \ // /
H L

6 Conclusion and summary

Komo tonal processes occur in three strata: derivation, inflection, and post-lexical (or phonological phrase) derivation. The following rules and processes are peculiar to each.

(129) Tone rules summary, in order of application

Derivational stratum:

1. Verb stem and TAM tone insertion (8). Ordered first so that TAM tone does not apply to prefixes.
2. Distant past H insertion, and L after H in non-negative distant past constructions (63A,B)
3. Third person plural H tone insertion. (38)
4. Negative H tone insertion (44).
5. H spreading (21). Disjunctive with each of 2, 3, 4. In other words, just one H tone need apply to a subject morpheme complex; it spreads to any other syllable dominated by the subject morpheme.
6. Default L insertion (20). Disjunctive with 5.

Inflectional Stratum:

1. L insertion on the object after a high-tone subject (53)
2. Plural object high tone (51), disjunctive with 1.
3. H retrolinking (3)
4. Contour expansion (57), fed by 3.
5. Nominal adjunct formation (96)
6. Downstep (74), fed by 5
7. H depression by locative prefix or incorporated adverb (67) and (127). This occurs leftwards.
8. H depression by a nasal object prefix (47). This occurs rightwards.
9. Default L insertion (20), disjunctive with 2

Post-lexical:

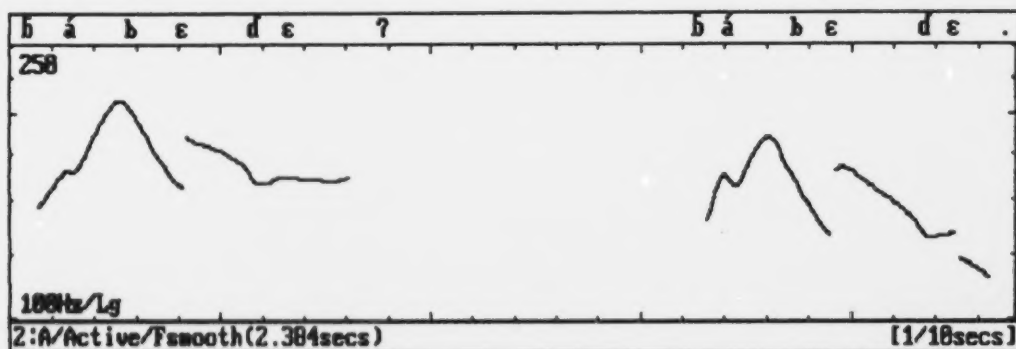
1. Declarative L insertion (92)
2. Downstep (74), fed by 1
3. Contour expansion, fed by 1
4. L insertion between two high tones (109)
5. L retrolinking (103), fed by 4
6. Default L insertion, where there is an extratonal syllable (20)
7. Interrogative intonation (84)
8. Downdrift (87)
9. Redundant [raised] (context = H) (86), disjunctive with 8
10. Default [raised] (85), disjunctive with 8 and 9

Appendix A. Instrumental analysis of downstep

Instrumental analysis of associative-phrase downstep does not always confirm the data obtained by asking Komo speakers to say a word or phrase, then whistle the same. The results are preliminary in nature, with the instrumental data having been elicited from one speaker over a three day time period. This is unlike the whistled data, which was collected over years and cross-checked with a number of speakers and in the presence of an experienced colleague.

First, I look at what instrumental analysis does confirm. Instrumental analysis confirms downstep in the subjunctive.

(A1) Instrumental analysis of *ḡábede?* 'They took it?' and *ḡábede* 'They took it.' (*bédá* 'take')



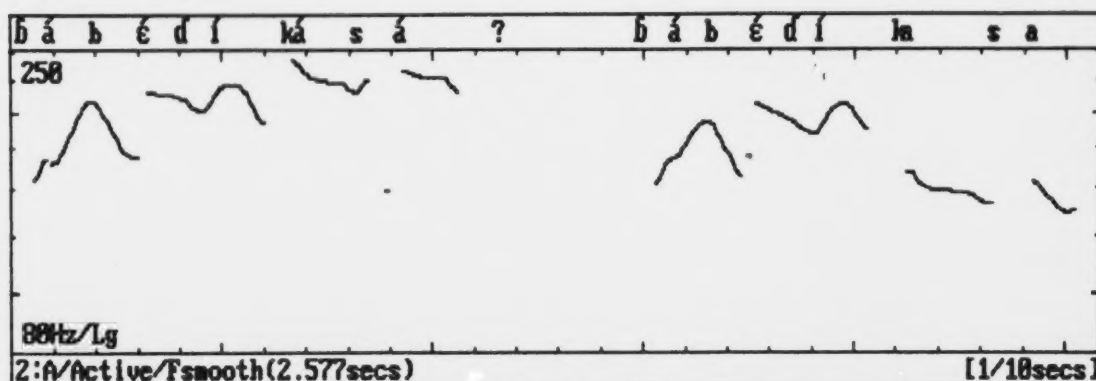
In the preceding chart, I note three things:

- i) On both sides, there is clearly a difference in pitch between the high tone on the first syllable and the tones on the subsequent two syllables.
- ii) The two final tones in the declarative show a steep offglide pattern that is characteristic of low tones.
- iii) The obstruent [b] tends to have a depressor action on the preceding tone and a raising action on the following tone. This is an etic observation: native speakers do not imitate this when they whistle. The whistled melody is [--- ---]. This becomes clearer in the next example.

I thus take the instrumental data as confirming the analysis of subjunctive downstep as being a lexical phenomenon that is independent of whether the subjunctive has declarative or interrogative intonation.

An instrumental analysis of downstep in verb plus object phrases also confirms downstep.

(A2) Instrumental analysis of *bábédí kásá?* 'they took the paper?' and *bábédí kasa* 'they took the paper.' (*bédá* 'take', *kásá* 'leaf')



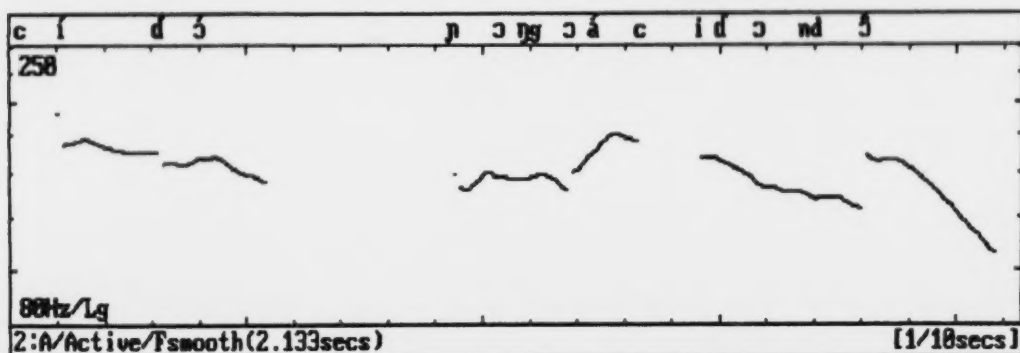
I again make some observations.

- i) On the left side, there is no downstep. Indeed, succeeding tones seem to drift upwards.
- ii) There is definitely downstep in the trace on the right of declarative intonation.
- iii) Again, certain obstruents, particularly [k] and [s], again depress the preceding tone and raise the the leading edge of the following tone. As already said, such effects do not emerge in the whistle test.

Therefore, verb-object downstep as a post-lexical phenomenon that is sensitive to interrogative-declarative contexts is born out in instrumental analysis.

The instrumental data that I was able to obtain on associative phrases before having to leave the Komo area due to political turmoil was inconclusive.

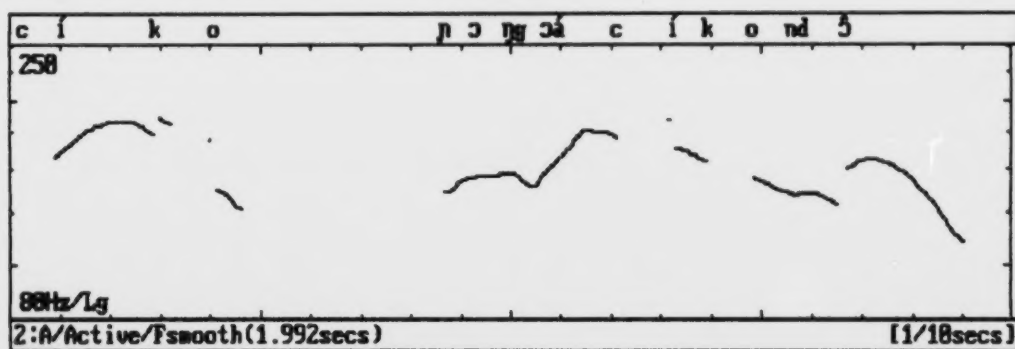
(A3) Associative plus noun with an HH lexical melody:
'louse, because of that louse' (cídó 'louse')



In the preceding chart, there is a small drop from 168 Hz to 159 Hz between the leading edges of the two occurrences of [í]. The [c] also appears to be an elevator obstruent that raises the leading edge of the subsequent tone.

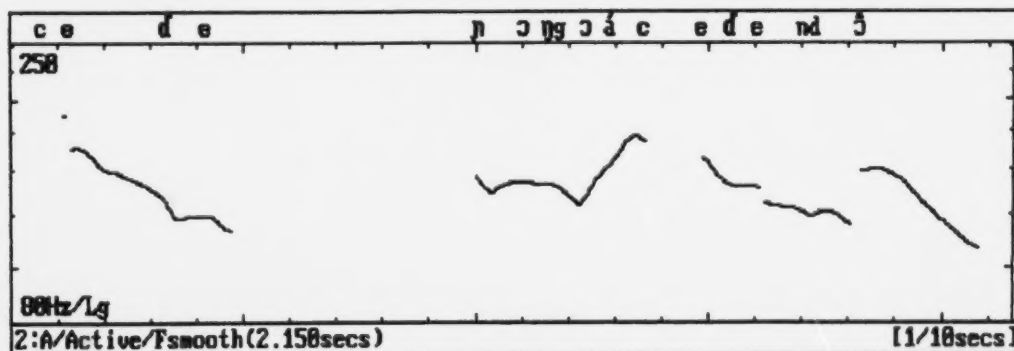
In the next chart, the shape of the trace on the right appears almost identical with the one above, except that the leading edges of the two [í]'s start at almost the same frequency.

(A4) Associative plus noun with an HL melody: 'field, because of that field' (cíko 'field')



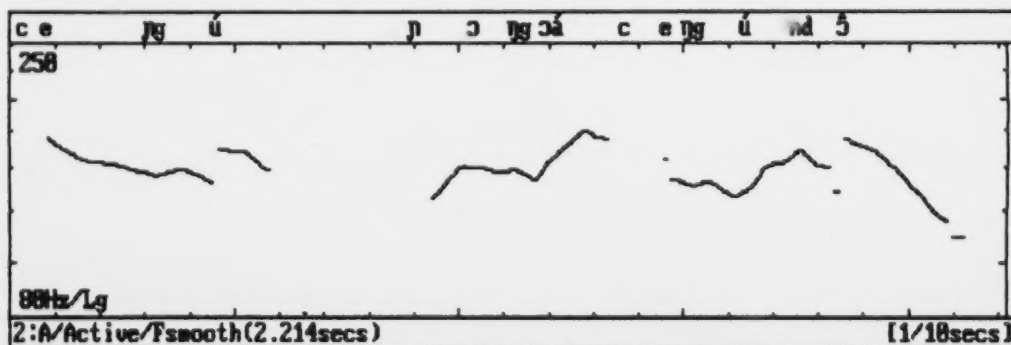
With an adjunct noun having a lexical LL melody, the trace has a shape almost identical to those of the previous two charts. Again, the leading edges of the two [e]'s are at almost the same frequency, and the [c] appears to be raising the leading edge of the following [e].

(A5) Associative-plus-noun with an LL melody: 'frog, because of that frog' (*cede* 'frog')



Finally, I examine the case of an associative-plus-noun with a lexical LH melody. Here, the low tone of the noun is a flat low, uninfluenced by the presence of the preceding [c]. This is perhaps due to some sort of adjacency principle at work, whereby the H on the final syllable of the noun prevents any elevating action by the initial [c]. The high tone of the noun has undergone downdrift with respect to the preceding [á].

(A6) Associative-plus-noun with an LL melody: 'poison, because of that poison' (*cengú* 'poison')



So, the the tonal traces of the adjunct nouns in associative constructions with HL, HH, and LL melodies are the same. This varies with the results of having speakers whistle the melodies, as shown in the following table.

(A7) Comparison of instrumental analysis and whistle elicitations of adjunct-noun tone melodies in the associative construction

lexical:		adjunct melody:	
<u>lexeme</u>	<u>melody</u>	<u>whistled</u>	<u>instrumented</u>
<i>cídó</i>	HH	LL	FL
<i>cíko</i>	HL	HL	FL
<i>cengú</i>	LH	LH	LH
<i>cede</i>	LL	LL	FL

Thus, the psychological results (whistling) seem to vary from the instrumental results. I account for this by proposing that certain obstruents depress the tone of a preceding vowel and elevate the tone of a following vowel, except where pre-existing tones may block this action through some sort of an adjacency constraint. Such an etic effect may be neutralizing the effect of downstep which Komo speakers seem to perceive when they whistle the tones. More instrumental data is needed, however, before I can make any formalization.

ABBREVIATIONS

A hyphen in a morpheme by morpheme gloss means a morpheme break, while a colon indicates more than one morpheme synthesized in the form the gloss represents.

ATR	Advanced Tongue Root
BE	Bracket Erasure
C	Consonant
F	Feature or Falling tone contour
H	[+upper]
H'	Floating [+upper]
HF	High-falling tone melody
HM	High mid tone
I.	Parameter setting portion of a formalized rule
II.	Argument portion of a formalized rule
III.	Trigger/target conditions of a formalized rule
L	[-upper]
L'	Floating [-upper]
LR	Low-rise melody
M	Mid tone
N	Nasal
NP	Noun phrase
O	Onset
OCP	Obligatory Contour Principle
R	Rising tone contour or Rhyme (depending on context)
S	Syllable
TAM	Tense-aspect-mood marker
TG	Transformational Grammar
UAC	Universal Association Convention
V	Vowel
X	Skeletal position
appl	applicative
assoc	associative
[α -upper]	alpha-upper
cl.(N)	noun class N
cs	causative
def	default
dp	distant past
ex	extratonal
h	[+raised]
h'	floating [+raised]
hab	habitual
impf	imperfective
int	interrogative
intr	intransitive
l	[-raised]
l'	floating [-raised]

nar	narrative
neg	negative
obj	object
pf	perfective
pl	plural
recip	reciprocal
sub	subject
subj	subjunctive
tr	transitive
1p	first person plural
1s	first person singular
2p	second person plural
2s	second person singular
3p	third person plural
3s	third person singular
/	link of a tone to the right hand vowel
\	link of a tone to the left hand vowel
.	node (if by itself)
?	denotes interrogative intonation (in post-lexical representations)
.	denotes declarative-final intonation (in post-lexical representations)

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